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TO EACH AND ALL

"Moreover, let me tell you, my young doctor friends, that a cheerful face, and step, and neck-cloth, and button-hole, and an occasional hearty and kindly joke, a power of executing and setting agoing a good laugh, are stock in our trade not to be despised. The merry heart does good like medicine.

* * *

"Well, then, it is the duty of the Doctor, in the first place, to *cure us;* in the second, to *be kind to us;* in the third, to *be true to us;* in the fourth, to *keep our secrets;* in the fifth, to *warn us,* and best of all to *forewarn us;* in the sixth, to *be grateful to us,* and in the last, to *keep his time and his temper.*"

Quoted by Dr. Walter C. Alvarez in his latest book, Nervous Indigestion. The author is the famous Scottish Physician, Dr. John Brown (1810-1882), who wrote a number of charming essays or papers under the general title *Horæ Subsecivæ.*

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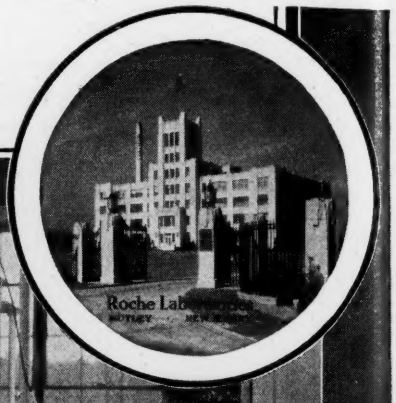

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CONTENTS

The Gonin Operation for Detachment of the Retina. Walter R. Parker, B.S., M.D. 61

Thyroidism with Unusual Clinical Manifestations. Max Ballin, M.D. 64

Further Studies in the Use of Iodized Oil (Lipiodol) in the Diagnosis of Maxillary Sinus Disease with a Report of Two Hundred and Twenty-Five Cases. E. L. Whitney, M.D., and H. P. Doub, M.D. 72

Intestinal Anomaly Revealed by Emergency Operation Following Motor Accident. Ira Dean McCoy, M.D. 77

A Note on Blood Transfusion, with an Account of a Fatal Reaction. F. J. Barkman, M.D. 83

Undulant Fever. W. M. Le Fevre, M.D. 87

Puerperal Inversion of the Uterus. La Mott F. Bates, M.D. 88

Bacteriophage Treatment of Staphylococcus Infections. N. W. Larkum, Ph.D., and Helen Pratt, M.D. 90

Urogenital Tuberculosis. A Modified Vernes Test as an Aid in Diagnosis. George Sewell, M.D. 92

Intravenous Sodium Amytal, with Report of a Death. Philip D. Amadon, M.D. 96

Michigan's Department of Health. C. C. Slemons, M.D. 97

Famous Men in Medical History: Walter Reed. Frank Maxwell, M.D. 100

Of General Medical and Surgical Interest 106

Editorials:

Post-graduate Courses in Medicine 107

Volume II of the Medical History of Michigan 107

Child Welfare Conference 108

Automobile Accidents a Liability to Medicine 108

If— 109

Is State Medicine a Solution? 109

Bargains in Living Flesh, et al 112

The Beaumont Lectures 112

Deaths 113

General News and Announcements 114

Society Activity 115

County Societies 116

Woman's Auxiliary 118

The Doctor's Library 120

THE GONIN OPERATION FOR DETACHMENT OF THE RETINA*

WALTER R. PARKER, B.S., M.D.†

DETROIT, MICHIGAN

Professor Gonin electrified the International Congress of Ophthalmology, held at Amsterdam in 1929, by his report of the results obtained in cases of detachment of the retina treated by ignipuncture. The report was based on one hundred cases that were classified as shown in Table I. In this report 73 per cent of the cases in the first group were recorded as cured, 48 per cent in the second, and 30 per cent in the third.

Gonin holds that the tear in the retina precedes the detachment and that it plays an essential role in the etiology and treatment of this condition. The operation has for its purpose the searing of the edges of the tear in the retina in order to facilitate its reattachment.

Since the searing of the edges of the tear in the retina is held to be essential for a successful outcome of the operation, the definite location of the tear and its relation to the point of scleral puncture are the most important details of the operative procedure.

The suitable cases for operation are those in which the detachments are recent in origin, ten to twenty-one days, not too extensive, and with a demonstrable tear in the

*Presented before the section on Ophthalmology at the 110th Annual Meeting of the Michigan State Medical Society at Benton Harbor, Sept. 16, 1930.

†Dr. Parker is Professor and Chief of the Department of Ophthalmology at the University of Michigan Medical School.

retina located at an accessible portion of the eyeball. Those cases that present one or two tears of relatively small size, located near the ora serrata, offer the best chances for success. The smaller the hole, the less

TABLE I

Group I.	Less than three weeks' duration.....		34
	Not suited for operation	4	
	Operated	30	
	Cured	22 = 76%	
	Not improved	8	
	Single ignipuncture	16	
Group II.	Less than three months' duration.....		35
	Not suited for operation	4	
	Operated	31	
	Cured	15 = 48%	
	Not improved	16	
	Single ignipuncture	5	
Group III.	More than three months' duration.....		31
	Not suited for operation	11	
	Operated	20	
	Complete anatomical cure with more or less imperfect restoration of vision	6 = 30%	
	Not improved	14	
			100

the number of tears, and the nearer they are to the ora, the better are the results following ignipuncture.

The method of locating a point on the sclera that corresponds to the location of the tear in the retina is somewhat complicated by the fact that one estimates the distance of the rent from the disc in disc diameters, while the corresponding point on the sclera is calculated in millimeters from the posterior pole or from the limbus. The estimation of the location of the tear from the disc, in disc diameters, must be corrected for the particular meridian by adding or subtracting the distance of the macula from the disc. In the horizontal meridian the distance from the disc to the macula is about 3.5 mm. and the diameter of the disc is 1:5 mm. If the situation of the tear is estimated in disc diameters from the macula, of course no correction is necessary. A chart is reproduced from Schoenberg's article, indicating the various landmarks and points to be avoided (Fig. 1).

After the location of the rent, made with the pupil widely dilated, Gonin marks two opposite points on the limbus in the meridian in which the tear is situated, and passes a thread through the conjunctiva near the limbus opposite these two points. An incision is then made in the conjunctiva, parallel to the limbus, slightly anterior to the estimated point of puncture in the sclera. The conjunctiva is retracted, and the thread passed over the denuded sclera in a prolongation of a line indicated by the marks at the limbus, and the calculated distance of

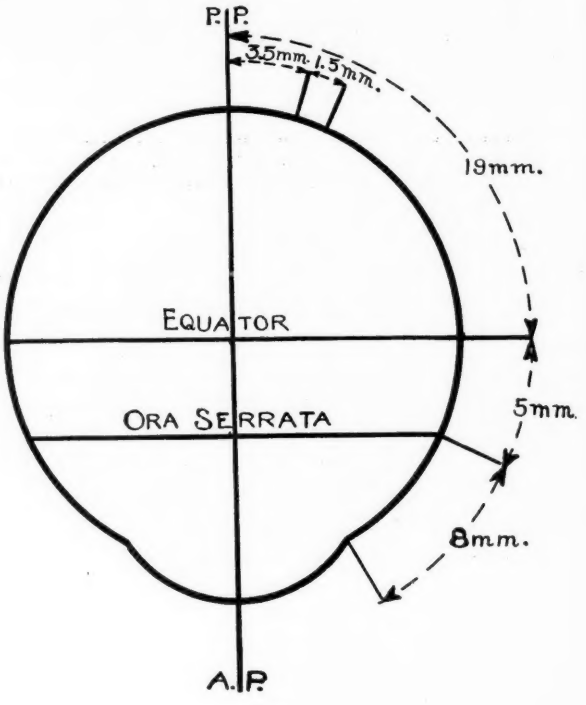

Fig. 1.

the scleral puncture from the limbus is accurately measured with a pair of calipers and the point marked with India ink. The thread can be more accurately held in line by the use of a retractor that has three perforations near its edge. The thread may be passed through the hole, that, after the retractor is in position, will prolong a line through the two points located at the limbus.

The location of the puncture can be facilitated by consulting the chart (Fig. 1) and noting that one-quarter of the circumference of the eyeball is 19 mm.; the ora serrata is 8 mm. from the limbus and the distance between the ora and equator 5 mm. If, for instance, the tear is located 16 mm. from the posterior pole, it would be 3 mm. back of the equator and 16 mm. back of the limbus.

The operation is performed under local anesthesia and with a widely dilated pupil. The sclera is incised with a Graefe knife, which is turned in the aperture to allow the escape of subretinal fluid. As soon as the free drainage ceases the knife is withdrawn and the tip of a Paquelin cautery at red heat is introduced through the puncture for a

distance of two or three millimeters and allowed to remain in position two or three seconds, then rapidly withdrawn. The conjunctival wound is closed, atropin instilled and the eye bandaged. The patient is kept in bed for about one week, if possible in such a position that gravity will facilitate replacement of the retina.

Gonin states that good results can not be expected if all the retinal rents are not included in the cauterized retinal areas. If the edges of the tear have been cauterized, there results a rounded or white atrophic area surrounded by pigment. There must be as many ignipunctures as there are tears in the retina.

The results from this operation have not been as brilliant in this country as were those reported by Gonin. Schoenberg, Archives of Ophthalmology, June, 1930, reports the results in ten cases. The first four were not suitable for any functional results; in two no tears were visible, and four cases were classified as successful. Gradle, in the American Journal of Ophthalmology for April, 1930, reports five operations on three patients. In his own words the results are as follows:

"I have performed the operation five times upon three patients. The first case was one of bilateral detachment that had been present for many months, and consequently only an anatomical result could be expected. But that was obtained, complicated, however, by dense vitreous opacities that appeared after the operation.

"In the second case, the detachment had been present for nearly two months and two retinal rents could be seen. Two ignipunctures were performed, and in each case the edges of the rent were included in the cauterization scar. But the detachment progressed and became as complete as though the very last word in surgical procedure had not been tried.

"In the third case, the detachment was only ten days old and a rent could be seen in the extreme periphery. An ignipuncture was performed and luckily the cauterization was accurately localized. There followed a re-attachment in the sector in which the operation was done, but the lower part of the retina remained detached and the detachment increased rapidly, despite bed rest. Ten days later another ignipuncture was done, after localization of another rent. This time the area was not struck so accurately and, although the retina became adherent to the sclera at the site of the cauterization, the rent remained open. This operation was followed by the appearance of rather dense vitreous floaters, and now, about six weeks later, the detachment is floating about as merrily as though it had never been disturbed."

I have performed the operation five times. Only two of the five cases were suitable for any operative procedure—one of nine and one of ten weeks' duration. The other three were of long standing—from two to eight years—with organized bands in vitreous and retina. One had three holes in the retina and only one was cauterized. The edges of the tears were seared in three cases and only partially included in the cauterized area in two. In each of these cases, in which the whole tear was not included in the cauterized area, the opening in the sclera was made too far back. In one case a hemorrhage into the vitreous followed the operation. Otherwise there were no serious complications.

In the favorable cases the re-attachment was not complete in either case, although the edges of the tears were cauterized. The fields were somewhat enlarged and the vision in each case improved from moving objects to counting fingers. All the cases here reported would, therefore, have to be classified as failures.

As the majority of the tears in the retina occur between the ora and the equator, it is important to know just how far forward a tear can be seen. There is some difference of opinion in regard to this point, some holding that one can inspect the retina to the ora, while others, and I am inclined to agree with them, hold that a point between the equator and the ora indicates the anterior limit of our observation with the ophthalmoscope. In my own cases, limited to five, the tear was included in the puncture in three cases, and in two I was a little too far back and included only the posterior border.

The results if ignipuncture in cases of detachment of the retina have been so encouraging in the experience of several European surgeons that I shall continue its use until convinced of my ability or inability to obtain satisfactory results.

DISCUSSION

DR. ROBERT G. LAIRD (Grand Rapids, Mich.): I think we are very deeply indebted to Dr. Parker for his explanation of the Gonin method, because it is much discussed these days. When a surgeon devises a new method, in his enthusiasm he usually claims more for it than other surgeons find justifiable. For that reason Dr. Parker is to be thanked for explaining which cases are and which are not suitable. From a study of the literature I find there is no place in which he has deviated from the universally accepted theories. Sinclair has proved on rabbits' eyes that all retinal detachments are not from retinal tears. I have had no experience whatsoever with the Gonin method. When in the hands of a skilled surgeon five cases are unsuccessful, less skilled surgeons should not adopt this method until better results are generally obtained.

DR. HOWELL L. BEGLE (Detroit): Even if one has had considerable experience with detachment of the retina and is impressed with the poor results

of our operative procedures of the past, he must hesitate to question the good results reported from this new method of cauterization of the retinal tear which Dr. Parker has so well described. The favorable reports from several European clinics and the general interest aroused in Gonin's procedure is very impressive, and should encourage each one of us to try out the operation and thus add to our knowledge of the subject. Personally, I feel that much study is needed before all the causes of detachment of the retina are understood and evaluated. I have used Gonin's procedure in only one case of detachment of the retina. The detachment resulted from trauma. A workman had suffered a perforating wound of the sclera with some loss of vitreous. A perforating foreign body had struck the retina apparently, and lodged close to it in the vitreous. A shallow detachment of the retina was observed two days after the accident and before the foreign body was removed. The sclera was incised back of the detachment and the foreign body easily obtained with a magnet. It was thought that the incision might favor re-attachment, but instead the detachment gradually increased. The scleral wound was therefore reopened and an electric cautery point introduced through its wound. Considerable hemorrhage into the vitreous followed this procedure. The blood apparently come from a large retinal vessel, which had been observed with the ophthalmoscope to lie close to the scleral wound. Vision has decreased since the operation. The retina is still detached. Visual acuity is about 20/200. I hesitate to operate further on this patient and to possibly destroy what vision remains. In traumatic detachment of the retina progress may be very slow and useful vision may be retained for a considerable period.

THYROIDISM WITH UNUSUAL CLINICAL MANIFESTATIONS*

MAX BALLIN, M.D.†
DETROIT, MICHIGAN

In all morbid conditions a diagnosis is readily made, if all the principal symptoms are present. When a pathological entity is first recognized as such, usually certain cardinal symptoms are described and required for the diagnosis. Later on it becomes evident that such entities can exist without all these principal symptoms being fully established. Again, one or the other of the symptoms may be so outstanding, and the other symptoms minimized or even absent, so that the diagnosis may be overlooked. This fact has recurred so often in medicine that it would be impossible to recall all such happenings, although a historical review of pathological development would be most entertaining and instructive, especially to younger colleagues who have not lived through the long period necessary for the growth of a new pathological entity.

A few instances may suffice to illustrate this point. In gallbladder disease symptoms of colic, jaundice, and vomiting were first considered necessary for the diagnosis of gallstones. We now know that not all of these symptoms, not even one, need to be present. The patient may have gallstones expressed only by indigestion. An inflamed appendix must be diagnosed at times without the cardinal symptoms, pain in the appendiceal region, fever, leukocytosis, and rigidity being absent, and the patient may have only a backache or irritation of the bladder caused by the inflamed appendix being located retrocecally or attached towards the bladder.

Modern brain surgery could not exist if we waited for the whole complex of symptoms, vomiting, headaches, failing vision, etc., before diagnosing brain tumors. The same is true in cord tumors where backache or a neuralgic condition occupies the field of symptoms entirely, sometimes for months and even years before the whole symptom complex develops.

In goiters, we are now passing through the same stage of broadening knowledge. This whole chapter has been developed within the life span of surgeons who have practiced now about twenty-five to thirty years. The diagnosis of toxic goiter is usually based on the presence of a visible or palpable goiter, pressure symptoms, such as dyspnea, toxic symptoms, eye signs, tachycardia, tremor, nervousness and an increased basal metabolic rate.

Our discussion shall refer to the following points:

1. Formes frustes of goiter with only one or two of the cardinal thyroid symptoms present.
2. One symptom may be so outstanding that it obscures the diagnosis.
3. A small, not visible or palpable, goiter may cause thyroidism.
4. The basal metabolism reading is only

*Read before the meeting of the Michigan State Medical Society at Benton Harbor, Michigan, September 16, 1930.

†Dr. Max Ballin was educated at the Universities of Freidburg, Munich, and Berlin, Germany, where he obtained the degree of M.D. from the University of Berlin in 1892. He has been head of the Department of Surgery of Harper Hospital since 1916.

one symptom, quite important, but not deciding the diagnosis.

5. Interlocking disturbances of several endocrine glands may still more complicate the diagnosis.

The following symptoms may be caused by a goiter without the main symptoms being present or outstanding:

1. Intestinal symptoms,
2. Glycosuria,
3. Cardiac symptoms, high blood pressure, tachycardia, decompensation, dyspnea, edema,
4. Arthritis,
5. Asthma and cough, dysphagia,
6. Vertigo, epilepsy, mental depressive conditions,
7. Disturbances in calcium metabolism.

GOITER WITH INTESTINAL SYMPTOMS

The great French physician, Marie, the pioneer in goiter surgery, Kocher, our Billings of Chicago (Chicago Medical Association, December 12, 1906) referred to the frequency of intestinal symptoms with goiter. For a paper on "Thyroidism as a Causative Factor of Intestinal Disturbances" (Detroit Medical Journal, August, 1910), which was read before the American Gastro-enterological Association in St. Louis in 1910, we tabulated one hundred fifty-nine cases, of which nine had diarrhea, others had vomiting, slight jaundice, mucous colitis, etc. Our experience with this combination has been so multiplied since, that now in the case of mild intestinal symptoms complicating goiter we advise that the goiter be removed before a doubtful appendix is operated or a patient subjected to long-standing medical treatment of indigestion without any radiographic findings of actual pathology; and it is surprising how frequently such intestinal symptoms disappear after thyroidectomy. The severe gastric symptoms occurring with diarrhea during crises in exophthalmic goiter are well known, but milder symptoms are very frefrequent. Kocher stated that forty out of eighty cases of goiter had intestinal symptoms. Billings' figure was twelve out of sixty-one cases.

Drs. Freund and Cooksey report five cases in which the patients were treated for years for intestinal symptoms (nausea, vomiting, weakness, loss of appetite, diarrhea, regurgitation of food, loss of weight), which went under the diagnosis of gastric ulcer, gastric neurosis and mucous colitis. Their goiters were so small that they were scarcely noticeable, but all medical care, rest in bed, dieting, etc., gave no results until the goiter was recognized as the cause of the trouble. In their communication it is especially interesting that these goiters were so small that they were hardly detectable as such. This should stress the point that microscopic changes in the thyroid gland are sufficient to produce thyroidism and an actual increase in the size of the gland is hardly necessary. In looking over these intestinal symptoms it is furthermore interesting to note how frequently the diagnosis mucous colitis is made instead of thyroidism. Mucous colitis is also frequently diagnosed as a substitute for gallstones and appendicitis. It is more pleasant for a patient to hear, but should really be demoted to a symptom and not regarded as an entity. We may have an ulcerative colitis of distinct origin, but the production of mucus and the irritation of the colon alone are just symptoms of many conditions irritating the colon (even physics may cause it). Again, if a goiter is present with intestinal symptoms, the goiter should be considered as the etiological factor unless strong evidence such as X-ray findings of ulcer, gallstones, etc., prove that we have an actual intestinal affection.*

GOITER WITH GLYCOSURIA

The observation that certain glycosurias are at times more dependent upon disturbances in the thyroid than upon pathology in the pancreas has been brought out by many clinicians. Lahey and Joslin, Pemberton of the Mayo Clinic, Jacob Mayer and John of Crile's Clinic have also brought out these facts. At times glycosuria in severe exophthalmic goiter is a symptom of great gravity indicating severe metabolic disturbances. In other cases, however, the glycosuria seems to be of lesser importance and we have now observed many patients who lost their glycosuria after thyroidectomy, sugar never having been found four and five years since operation. These observations should mean that glycosuria in combination with goiter should not be a contra-indication to operating; on the contrary, the sugar tolerance will be increased after operation. The only cases where sugar in the urine is a symptom

*After reading this paper an article by Gilman and Kay of the Stanford University appeared referring a good deal to the same points we made. The significant title reads: "Remote Symptoms of Unrecognized Thyroid Adenomata, with Low Basal Metabolic Rate Relieved by Operation." Amer. Jour. of Med. Sc., CLXXXI, No. 3, September, 1930.

of grave importance in goiter are those where it appears with other most violent signs during a thyroid crisis.

GOITER WITH CARDIAC SYMPTOMS

In recent years quite a few physicians (I say physicians in opposition to surgeons in this instance) have written on the subject of heart disease caused by hyperthyroidism. I just mention titles of such work:

Levine, S. A., and Sturgis, C. C., "Hyperthyroidism Masked as Heart Disease."

Boas, E. P., and Shapiro, Shepard, "Diastolic Hypertension with Increased Basal Metabolic Rate."

Hamburger, Walter W., and Lev, Morris W., "Masked Hyperthyroidism."

Freund, H. A., and Cooksey, W. B., "Thyrotoxicosis in Elderly Persons without Signs of Goiter."

Lev, Morris W., and Hamburger, Walter W., "Association of Angina Pectoris and Hyperthyroidism."

Levine, S. A., and Walker, G. S., "Further Observations on Latent Hyperthyroidism Masked as Heart Disease: Angina Pectoris."

It is quite a satisfaction to surgeons that these facts, as indicated in these different titles, are now recognized by medical men after surgeons, especially Lahey, have stressed their existence for a long time. A long-standing toxic adenoma or a long-standing exophthalmic goiter may lead to total cardiac decompensation with edemas, ascites, pleural exudates, engorged liver, dyspnea incapacitating the patient entirely. The cardiac decompensation is so prominent that the original goiter is overlooked. Lahey, in his many lectures on this topic, always brings out that such a patient exists in every town and a good many in hospitals, without the thyroid receiving the attention it should deserve. It is quite characteristic in this type of cardiac decompensation that digitalis, quinindine, rest in bed, etc., will not have the same beneficial influence as in real primary cardiac decompensation, but as soon as the goiter is removed, digitalis and quinidine will act, the edema will disappear, the dilated heart will contract and the patient who has been an invalid for years may go back to work. We have more than ten cases on our records of patients coming to the hospital with ascites and immense edema of the legs and scrotum who have been returned to active life by removal of their goiters. These cases of total decompensation were rather unwelcome to the surgeon; the mortality rate was first given as forty per cent, but has gone down, under proper observation of modern rules for such thyroidectomies, to four per cent.

An actual congenital or acquired infectious heart lesion may be complicated by a toxic goiter. Also in these cases an exclusion of the existing thyroid element by thyroidectomy is strictly indicated. It is remarkable that the goiters in these cases are sometimes so small that they can hardly be seen or palpated and still they are the causative factor of the cardiac disturbance. Hamburger and his co-workers at the Michael Reese Hospital in Chicago have paid special attention to the goiter heart. They conclude that there is a masked thyroidism that goes under the picture of organic heart disease, angina, etc., for years. The diagnosis of thyroidism in such cases should be made if symptoms of hot feeling of the skin, flushed skin, pigmentation of skin, unexplained loss of weight, staring eyes, increase in metabolism and temporary improvement on the administration of Lugol's solution are present. Lastly, the cure by thyroidectomy will be a pleasant confirmation of the diagnosis. Hamburger also mentions that the goiter does not have to be a large one, that histological and microscopical changes in the gland are sufficient to cause the symptoms. He considers the diagnosis of this group a very important one, as they can be cured by thyroidectomy and are not amenable to any other care. Tucker of the Cleveland Clinic also reported three cases of hyperthyroidism without visible or palpable goiter causing cardiac symptoms. In our experience the main reason that goiters are kept in medical departments as cardiacs is the finding of a mitral murmur leading to the diagnosis of mitral stenosis and electrocardiograph reports of serious myocardial damage. That both findings are due to goiter is overlooked and the patient is carried on as a case of heart disease.

GOITER AND ARTHRITIS

In 1922, we published an article on "The Simultaneous Occurrence of Tumors in the Thyroid, Uterus and Breast."* In gathering statistics for this article it became evident that the association of goiter with arthritis was far above the percentage of arthritis

*The Simultaneous Occurrence of Tumors in the Thyroid, Uterus and Breast. Max Ballin and R. C. Moehlig, Jour. A. M. A. 1922, Vol. 79, pp. 1243-1244.

usually found in patients without goiter. In 1920 I reported the association of goiter and arthritis before the Detroit Academy of Medicine.

Duncan, W. S. (The Relationship of Hyperthyroidism to Joint Conditions, Jour. A. M. A., 91, December 8th, pages 1779-1783, 1928), has recently called attention to an association between hyperthyroidism and arthritis. His patients had basal metabolic rates ranging from plus 22 per cent to plus 88 per cent. We are able to confirm his experiences but also call attention to another phase of this problem. While Duncan's cases were all of the hyperthyroid type, we encountered the combination of goiter and arthritis also in cases of normal and subnormal basal metabolic rates. Also in this type, the results of thyroidectomy have been as good as those obtained by Duncan in his hyperthyroid cases. Enough time has elapsed for us to state that the results are permanent. Our usual advice given in these cases of arthritis with normal or subnormal basal metabolic rates, was that the removal of the goiter "might" benefit the arthritis without promising results. We have not had any great success with the administration of thyroid extract in combating such arthritis. A short record of the result of thyroidectomy in such arthritis is as follows:

Miss C. C., age 40, nurse. Seen on August 20, 1926, had arthritis for years. The main symptoms present were a large adenomatous goiter, polyarthritis, swelling of interphalangeal joints. The tonsils, some teeth, and appendix had been removed as possible foci of infection but no improvement followed. Patient could hardly earn her living as a nurse because of arthritic joint pain. The basal metabolic rate was minus 15 per cent. On November 20, 1926, a bilateral subtotal lobectomy was performed. Arthritic pains entirely subsided and Miss C. is working constantly, now four years, after the arthritic joints were treated with massage, light, etc., for a month after operation.

We could multiply this experience tenfold. The more attention we pay to this point in examination of our goiter patients, the more conscious we become of the simultaneous occurrence, the frequency, the affinity of goiter with arthritis.

Mrs. M. S. W., age 52, Case No. 23174. Goiter since childhood. For the past year palpitation and shortness of breath. Large adenomatous goiter. Interphalangeal arthritis. Basal metabolic rate minus 5 per cent. Pain in joints. Thyroidectomy October 30, 1928. On December 31, 1928, neuritic and arthritic pains had disappeared.

Mrs. S. C. R., age 27, Case No. 21780. Goiter for past three years, loss of weight, 35 pounds. Nervousness, basal metabolic rate normal, tremor, etc. Had arthritis for seven years. Pain in joints, elbows, knees, and hands. Was in bed for practically two years. Several teeth extracted without relief. Bilateral subtotal lobectomy May 14, 1927. Pathologically, thyroid adenomatous. Immediate relief of joint symptoms.

This patient, despite the removal of the usual foci of infection, was not benefited in four years' treatment before thyroidectomy.

Pemberton's* studies on the blood chemistry of arthritis revealed that lowered tolerance for sugar is frequently present. Here we see an analogy between the tendency to glycosuria in toxic goiter patients and the arthritics.

We are, however, not ready to offer an explanation as to why thyroidectomy gives relief from arthritis. Duncan is inclined to believe that this form of chronic disease of the joints is dependent on a dysfunction of the thyroid. Because of the absence of the usual changes which accompany infectious diseases, we are inclined to the opinion that its origin lies in some form of metabolic disturbance.

The two etiological factors for arthritis coincident with goiter may be the following:

(1) There are foci of infection producing both the thyroidism and the arthritis and the thyroid gland possibly becomes a focus itself. After removing toxins first from the primary focus (tonsils, teeth, etc.) the toxin stored in the thyroid is removed by thyroidectomy and relief is obtained from the arthritic symptoms.

(2) A metabolic disturbance causes the arthritis in goiter. This is much more probable for the following reasons: Pemberton and others have shown that in goiter there is a low tolerance for sugar. Moehlig has shown that the cholesterol metabolism is markedly increased so that gallstones are also frequently seen in goiter patients. As in arthritis, etc., not all gallstones start around infectious material. Gallstones in young women, forming during their first pregnancy, are well known to every surgeon. These usually are many minute stones in an otherwise healthy gallbladder, suggesting their origin from metabolic changes. From this consideration, we believe that the chemical changes in the metabolism of cholesterol and sugar are very probably the contributing factors to the production of arthritis in goiter.

The result of thyroidectomy on such arthritis is so striking that it is worth while to keep this in mind as an indication for op-

*Pemberton, R., Arthritis and Rheumatoid Conditions. Amer. Jour. M. Sc., 166:833-845, 1923.

erating on goiters. Look at your next twenty goiter patients and see how many of them have thickened interphalangeal joints. But to warn against exaggeration, some arthritis coincident with goiter has not improved and one at least got progressively worse after thyroidectomy.

ASTHMA, COUGH, DYSPHAGIA AND CARDIOSPASM

Asthma is again a symptom which may be produced by different causes, emphysema, allergic conditions as in hay fever, etc., and cardiac conditions. An adenomatous goiter causing pressure in the upper aperture of the thorax should also be considered as a possible cause for asthmatic respirations if no other cause can be found. If the trachea is actually compressed in this place by a goiter and such compression can be shown in X-ray, it is easily understood that stertorous or asthmatic respirations will result from such pressure. But also a small goiter not causing constriction of the trachea demonstrable with X-ray, may cause an asthmatic condition by pressure on the vagus or sympathetic nerves.

For instance, an Italian working man, about thirty-five years of age, was suffering from asthma for about a year. A small goiter could be seen rising from the thorax in swallowing. He had had all the usual treatment for asthma. His goiter was removed (Dr. N. M. Allen) and the asthma disappeared completely. We have seen similar cases several times.

A goiter growing into the recess between the trachea and esophagus, as has been frequently described, may cause, as the main symptom, difficulty in swallowing. Anyone who has liberated such a goiter from its retrotracheal layer will readily understand this symptom. Also the post-operative difficulty of swallowing, which usually lasts from one to three days after a goiter operation, will render this symptom easily understood.

The following case illustrates such a condition in an exaggerated way:

A white woman, farmer's wife, thirty years of age, had lost thirty pounds on account of not being able to swallow anything but fluids. She had been examined for esophageal diverticulum, cancer, etc., and had X-rays and esophagoscopy without finding any cause for the dysphagia. A moderate sized goiter was easily seen but the development into the tracheal esophageal recess of this goiter was not appreciated. We removed her goiter and the dysphagia disappeared at once. While in this case the dysphagia was masking the goiter totally, we have frequently observed a lesser degree of interference with swallowing from goiters.

For cardiospasm, which was not improved by the usual dilatation methods of the cardia, we have intentionally removed goiters three times. As cardiospasm is a reflex symptom and not a pathological entity, the goiter again can be the cause of this reflex. One of our patients, a woman forty-five years of age, had cardiospasm with typical X-ray findings with retention of food above the cardia, and had been treated with hydrostatic dilatations for a long time without results. She showed an adenomatous goiter, after removal of which the difficulty in swallowing disappeared.

In a second case, the patient was not cured and still needed dilatations, but was markedly better than before operation. In the third case, thyroidectomy did not improve the cardiospasm. Therefore, thyroidectomy should be advised guardedly in a case of cardiospasm.

VERTIGO, EPILEPSY, AND DEPRESSIVE CONDITIONS

Kocher, in other publications on goiter, as mentioned before, brought out that even a small adenomatous goiter of the diving type, such as we see disappear, in swallowing, back of the clavicle or sternoclavicular joint, may press on the jugular vein and important nerve structures and cause cerebral symptoms, by interference with the reflux of the venous blood from the brain and cause dilatation or constriction of the blood vessels by pressure on the vagus and the sympathetic system.

A lady fifty-five years of age had an adenomatous goiter. Her main complaint was dizziness. While she may have had some arteriosclerosis, this was not so marked as to make a diagnosis of cerebral arteriosclerosis, still we hesitated to promise any improvement on removing her goiter. The symptoms grew worse, the dizziness grew to such an extent that we consulted a neurologist as to cerebellar tumor. However, the symptoms were not such as to make such a diagnosis. Finally, we decided to remove her goiter, which was about two to three inches in diameter. When she entered the hospital she had a black eye from a fall during her dizziness, which did not encourage us for thyroidectomy, still we removed her goiter with the result that her dizziness and vertigo has disappeared and has stayed away now for five years.

This experience made us more aggressive in feeling that symptoms of this kind were caused by the goiter. We have a good many such fine results as the one mentioned, namely, curing of dizziness by removal of the goiter. Usually the patient has an adenoma with a minus metabolic rate, but situated in the upper thoracic aperture, causing symptoms by pressure on vascular and nerve structures.

A goiter with diminished metabolic rate and symptoms of myxedema leads to a diminished stimulus by the thyroid of other organs, including the cerebrum. From this consideration it will be understood why depressive cerebral conditions may be due to goiter. Great care, however, should be exercised in removing goiters for any mental condition. Otherwise great disappointments to patient and physician will be met with and the few cases where removal would be beneficial will not be distinguished.

Mrs. O., about 65 years of age, mother of two teachers, both having had goiters and operated on by us, had quite a severe mental depression, so that the daughters had to stay home for a few weeks at a time to prevent her from doing harm to herself. Again our decision to remove the goiter was very slowly arrived at, but finally it was removed with the result that the lady has had no depressive spells now for two years.

EPILEPSY

A few young people, with epileptic seizures, have consulted us. Usually they are from four to five inches above the normal in height, at the age of sixteen and seventeen, and all are from goiter families. They had been treated for several years by prominent neurologists. Their basal metabolic rates were slightly decreased and they had some hypertrophy of the whole gland. Careful administration of thyroid extract has resulted in a cure of five or six of these cases, cures having lasted now for two and three years. This chapter also should be treated very carefully. Goiter should be manifest, thyroid inheritance should be present, and other endocrine disturbances should draw attention to the possible source of the epileptic seizures in the thyroid. Epilepsy should not be considered as an entity but as a symptom of a good many diseases. We have epilepsy in a depressed skull fracture, in tumors of the brain, as the result of meningitic affection, also from faulty absorption from intestinal stasis, which reminds us of tetany in pyloric obstruction, also from a good many endocrine disturbances. Hyperinsulism as recently described in tumors of the Islands of Langerhans, goes also with epileptoid seizures. Tumors of the suprarenal bodies, besides their peculiar paroxysmal attacks of hypertension, have symptoms of epileptic type.

Seizures of tetany in parathyroid disturbances are epileptic in character, therefore the origin of epileptic seizures from the thyroid is not an exceptional happening by any means in the endocrine sphere.

HIGH BLOOD PRESSURE

Symptoms of high blood pressure are frequently associated with thyroidism. That there may be a real causative connection has been brought out again by the discovery that tumors of the suprarenal bodies have, as outstanding symptoms, paroxysmal attacks of very high blood pressure readings, up to 300 and more. When this chapter was discussed before the American Association of Surgeons two years ago, following a paper written by Miles Porter, who had removed one of these tumors, it was mentioned in the discussion that the same results were obtained in attacks of paroxysmal high blood pressure by removal of a thyroid adenoma. This shows simply that endocrine disturbances may be caused by multiglandular affections and that removal of one or the other may effect a cure by breaking a vicious circle or some other influences not entirely clear as yet. There are cases of high blood pressure and also cases of so-called neurocirculatory asthenia, where adrenal complications are present and in which Crile recommends adrenalectomy in addition to thyroidectomy. This chapter, however, is new and no conclusions should be made at present.

CALCIUM METABOLISM

In late years this question of interlocking glandular disturbances complicating thyroidism has been made still more interesting by the discovery that tumors of the parathyroids or microscopical changes of the parathyroids will cause changes in the calcium metabolism and produce pictures like osteomalacia, fragility of bones, and osteitis fibrosa cystica. Donald Hunter, an English surgeon, in his Goulstonian Lectures, Lancet, April 6th, May 3rd and May 10th, has brought out that changes in the calcium metabolism and thinning of the bones may be caused by a diseased thyroid as well as by a diseased parathyroid. We have had under our observation at least a dozen such cases where lime deficiency in bones, frequent fractures, and conditions simulating osteitis fibrosa cystica or resembling malignant deposits in the bones, should be referred to parathyroidism and perhaps thyroidism.

This condition, that will probably keep the name of "Parathyroidism," gives kaleidoscopic pictures. Some seem to have disturbances of lime contents in the bones early

in life without many symptoms, and only an accidental fracture or a backache leads to X-ray discovery of multiple foci in many bones. Of another group a few classical cases run as follows: The patient around midlife complains of backache, he claims he has gotten shorter, his head has sunken more in between his shoulders, his legs are bowing, the costal arches approach the spines of the ilium more and more. Again, others have multiple fractures, rib fractures especially. The X-ray diagnoses a pathological fracture through a bony area of lime deficiency; usually a diagnosis of multiple metastatic malignancy or myeloma is made, but the patient resists the diagnosis and does not die in four to six years. Still they become invalids, the softened vertebræ crush in, the spine becomes more and more curved; severe root pains along the intercostal nerves make their lives miserable; corsets are applied with but little help. If these patients have, besides general deficiency of bone salts as shown in the radiogram, an elevated serum calcium and an increased calcium excretion (also reduced serum phosphorus and elevated phosphorous secretion), the diagnosis of parathyroidism is justified and a thyro-parathyroidectomy should be performed. To be sure, myeloma and metastatic malignancy should be ruled out carefully by examining for primary foci, cancer of breast or prostate. Many of the cases of osteitis fibrosa cystica, and Paget's disease of the bones, may perhaps belong to this group of parathyroidism. Goiter may complicate the parathyroidism quite often; there may be an underlying tumor of the parathyroid, adenoma or cancer, present (rarely palpable); there may only be microscopical changes present in the structure of the parathyroids (Aschoff); and again, as previously quoted, Donald Hunter claims that the thyroid and parathyroids each have relationship to this decalcifying process.

As far as treatment is concerned, there are now enough cases on record to state that parathyroidism can be cured even after years standing by removal of a parathyroid tumor or diseased parathyroids or perhaps by thyroidectomy (Hunter). Surgical technic demands a parathyroidectomy with more or less removal of the thyroid; perhaps this fact and the presence of parathyroid within goiters explains why thyroidectomy as well as parathyroidectomy may cure parathyroidism. The results of these operations are recorded as splendid; the lime salts return to the bones within six to seven months, the severe neuralgia disappears, the bones again become weight-bearing, no more fractures occur and some patients, after long invalidity, have returned to work.

The tetany symptoms after parathyroidectomy are well controlled by administration of Collip's serum and calcium. Disturbed calcium metabolism with all these symptoms mentioned is a frequent condition; since we have watched for it we have about ten cases collected in a year. Such cases seem to be curable only by thyro-parathyroidectomy.

CONCLUSIONS

1. Very small goiters hardly visible or palpable may cause serious symptoms.
2. Low basal metabolic readings do not rule out a goiter as responsible for a pathological condition.
3. Intestinal disorders, cardiac decompensation, angina-like attacks, cough, hoarseness, arthritis, asthmatic conditions, nervous disorders, not fitting in the usual picture of such conditions, may mask a thyroidism.
4. High blood pressure, especially the paroxysmal type, or the asthenic forms of thyroidism, point to a complicating adrenalism (cortical or medullary), in addition to thyroidism. Insulism indicates thyroidism plus parathyroidism.

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DISCUSSION

DR. LEON M. BOGART (Flint): I would like to draw attention not only to the overwhelming cardiac symptoms, but those who have mild cardiac symptoms. We see them quite often. Three years ago I reported several cases of so-called cardiacs that were cured by thyroidectomy.

These symptoms were rather mild with slight hypertension and tachycardia. One patient in particular, in whom there was a pronounced tachycardia and cardiac decompensation, and was also a diabetic; after a preliminary preparatory regime, a thyroidectomy was done, with an apparent clinical cure of all his symptoms.

I believe we ought to recognize that as we go along we shall meet with more so-called atypical cases in goiter as well as in other diseases. Dr. McClure this morning spoke of a man who reported to him that he hadn't seen any cases of appendicitis in Arabia. Foreigners coming over here tell us that appendicitis is practically unknown in their villages. But with the change of conditions whereby they are taken away from the life they had led close to the soil and come in contact and live the industrial life of their present surroundings, they show a great change, in the incidence of appendicitis, assuming proportions comparable to the native born.

The above phenomenon is often noticed regarding the prevalence of symptoms referable to thyroid dysfunction. The more primitively people live the less thyroid dysfunction they have, unless they come from goiter-infested countries.

I have operated on several hundred colored people and have noticed this: that if they are newcomers from the South and their environment has not changed much, they are not apt to have appendicitis and little if any thyroid disturbance. But after they have lived here for ten or twelve years, the frequency of appendicitis is increased remarkably and they also become subject to thyroid disturbances, the symptoms running a very atypical course.

DR. WILLIAM J. CASSIDY (Detroit): I think Dr. Ballin stressed the point very, very forcibly in his paper, that in considering the thyroid we must be very careful and not accentuate the thyroid too much, as the causation of these vague symptoms. We have all gone through these various periods of surgical enthusiasm.

The big problem now, in the surgical field, unless you are unduly careful, is: If the patient consults the surgeon of radical type, you will find a high percentage of surgical endeavors which cannot be backed by clinical or laboratory findings. I challenge the pathologist to show the essential cellular difference between a thyroid which showed marked exophthalmic goiter of the type in which the sympathetic nervous system is involved principally and differentiate from the type in which the sympathetic nervous system showed very little change. You can't prove it pathologically any more than you can show adrenalin in the blood and have your adrenals hyperactive. Fortunately surgery has gone far ahead of the laboratory. Surgical procedures are done on very questionable diagnoses in many instances.

I have been interested, during the last two weeks, in a paper by Dr. Clark, of Grace Hospital, in which he evaluated postoperative thyroids and found that less than 14 per cent of the hyperthyroids are benefited by surgery over a period of time and the cases where they were benefited were where they had multiple adenoma and were thrown into mild myxedemic states. The others were not benefited and over a period of time were worse. These are the factors we want. We should have more statistical data from the cardiologist and the medical man and not so much from the large surgical clinics, which have a tendency to sway over the country and give a wrong slant on what surgery can accomplish over a period of years rather than what the immediate surgery can do by the average.

DR. HENRY J. VANDEN BERG (Grand Rapids): It is very interesting, refreshing and instructive to hear Dr. Ballin tell us something unusual and out of the ordinary about the thyroid in its relation to variable conditions and complaints. It is true that the internists are only just beginning to realize the importance of the thyroid as an etiological factor in heart cases of long standing.

In making a postoperative study of goiter cases I have learned that goiters are toxic much longer than has been realized. The duration of toxicity can seldom be ascertained until the patient has experienced the result of his operation.. It is only then realized that a case has been toxic usually for several years longer than the time given in the history. I have chosen to call this period that precedes the more definite onset the "smouldering period." The unusual complaints presented by Dr. Ballin have their onset oftentimes somewhere near the beginning of this "smouldering period."

We have seen cases of marked dispositional changes dating from the beginning of the "smouldering period" cleared up immediately after thyroidectomy. One case of chronic cough of fourteen years standing had been intensively studied for suspected tuberculosis. Toxic goiter had not been suspected. It would be interesting to know the number of mild thyro-toxicosis cases that have been treated as incipient tuberculosis. This same patient had looseness of the bowels for the same length of time. After thyroidectomy there was an instant cessation of the cough and the bowels again became regular and the stools formed. There was no reason to believe that the cough was on a mechanical basis.

Indefinite dyspepsia and bowel disturbance of one kind or another are the most freqquent complaints. One case had canker sores for a number of years. It is now two years since her surgery and she has not had a canker sore since. We have seen joint disturbances cleared up after goiter surgery and have also seen joint disturbances appear soon after surgery, but they eventually clear up. This is probably from disturbed body chemistry. We had one case of falling out of the hair as noted by Dr. Ballin.

I made a study of epilepsy a few years ago in relation to the endocrines, but I was not able to limit the endocrine disturbance to the thyroid alone. It was my conclusion that the gonads played a more prominent rôle. Our experience coincides with that of Dr. Ballin in relation to the metabolism test. It is valuable, but not infallible. I find the sign of cardiac overaction more constant and more reliable.

I have not been able to convince myself of the relationship between tthe presence of goiter and uterine fibroids.

I want to caution against over-enthusiasm of these interesting citations in their relation to the thyroid, but have them serve as hints or clues pointing to such a possibility in obscure cases.

FURTHER STUDIES IN THE USE OF IODIZED OIL (LIPIODOL) IN THE DIAGNOSIS OF MAXILLARY SINUS DISEASE

WITH A REPORT OF TWO HUNDRED AND TWENTY-FIVE CASES

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Since 1926 the literature has become quite voluminous on the subject of iodized oil in the diagnosis of sinus disease. This simply indicates that the rhinolaryngologists of the country are gradually coming to rely more and more on this exceedingly valuable diagnostic aid. The object of this paper is not to present anything particularly new, but to stimulate further interest in certain phases of the subject which we feel need more study. We refer, especially, to errors in interpretation, the character of the pathology, the effect of iodized oil on the mucous membranes and the emptying time of the maxillary sinus.

The rhinologist and roentgenologist are called upon many times to answer the question of antrum disease. This is done because the medical profession, at large, is now looking at the sinuses as possible foci of infection. Today, many internists and general practitioners make use of transillumination and when a hazy sinus is found turn to the above specialists for an opinion. Aside from the history and findings in the nose, nothing is of more value than iodized oil in helping to determine the presence or absence of pathology.

Iodized oil is of the greatest value in the following conditions:

1. Borderline cases. Every rhinologist has been confronted with a hazy sinus, cloudy X-ray films and clear washings or different combinations of these and still not be satisfied that pathology is absent. Here iodized oil is of great assistance.

2. Type and extent of pathology. This, of course, is relative and must not be relied upon too completely; however, a thickened membrane of any material degree is demonstrated. Small polypi and polypoid membrane in patches are not readily differentiated from thickened membrane. Polypi of moderate size are practically always outlined. Except by looking into the sinus, nothing lends as much information as to the type of therapy to pursue as this opaque medium.

3. Anatomical variations: The sinus hazy to transillumination and X-ray may be due to thick bone. The sinus may be anatomically small or septa may be present. These conditions are all clarified by iodized oil.

LIPIODOL TECHNIC

There is little to be said about the method of injecting iodized oil, except to state the method used in this series. The anesthesia consists of equal parts of 10 per cent cocaine and 1-1000 adrenalin on a small applicator, which is placed in the inferior meatus and left about fifteen minutes. A 16 gauge needle with a small piece of attached rubber tubing is used for puncture. A 10 c.c. syringe is used. We have followed Fraser's method of dilution, using one part of lipiodol to two parts of petrolatum. This mixture is slightly warmed before injecting. If both antra are to be filled, the head is kept in the upright position, otherwise the head is rotated to the side to be filled. Usually a preliminary washing of physiological saline is carried out; however, injections have been made without this. The injection is continued until oil is seen coming over the inferior turbinate. A moist piece of cotton is then placed in the region of the middle meatus and the patient is sent to the X-ray Department, five floors below.

ROENTGEN TECHNIC

From time to time films have been made in all the standard positions which are used for examination of the paranasal sinuses, but the greatest amount of information has been gained from films made in the Waters postero-anterior and in the lateral positions. Progress films to check the emptying time and any further pathology have been made at various intervals. For this purpose single postero-anterior films are made to prevent injury to the hair by over-exposure. In

those cases in which the pathology is not clear or a differential diagnosis cannot be made from these standard films, it is advisable to employ other positions to show the particular portion of the antrum in question.

ROENTGEN-RAY CHARACTERISTICS

In the roentgenogram of the uninjected antrum the bony outline is plainly shown together with any variation from the normal bony contour. In addition soft tissue tumors and polypi can usually be demonstrated if their size and position are such that they are seen in silhouette. The normal air containing antrum also has a characteristic appearance, but there are variations between this and the antrum of undoubted pathology which are difficult of interpretation. This class of cases and the desire to disclose hidden foci of infection have led the roentgenologist and the rhinologist to search for methods of completely outlining the paranasal sinuses and iodized oil has seemed to be the most effective agent for accomplishing this purpose.

When the normal antrum has been well filled with iodized oil, the shadow of the opaque medium will be seen to be the size and shape of the antral cavity as outlined by the bony contour. Between the bony outline and the opaque medium is a narrow clear space of approximately one millimeter which corresponds to the space occupied by the normal mucous membrane.

In those cases presenting thickening of the antral mucous membrane, there is a widening of this distance between the bony wall and the opaque medium, and there is frequently a fuzziness or irregularity of the outline of the opaque shadow. This widened space gives preoperative information in regard to the condition of the mucous membrane which can be obtained in no other way.

Polypi produce more localized filling defects, frequently round or oval, and may or may not be associated with evidence of thickening of the mucous membrane. They may be seen in the postero-anterior and lateral projections, or in both, depending upon their position in the antrum. They are occasionally obscured by the complete filling of the antrum and are disclosed on the subsequent examinations after partial emptying has taken place. They may be disclosed also by an area of lessened density in the opaque material, but without the definite defect and it is these cases which are most apt to be disclosed after partial emptying. In some cases the polypoid degeneration of the mucous membrane is so marked that the individual polypi can be seen with difficulty or not at all, and the picture is that of a very small antral cavity of irregular outline and density with clouding of the space between this and the bony outline.

In those cases where polypi have been disclosed roentgenologically, either with or without the aid of iodized oil, Doub and McGee[1] found a high percentage of operative confirmation. However, many cases with polypi are not seen on plain films because of their size and position, and also because of a thickened superimposed mucous membrane and it is in these cases that iodized oil comes to our aid very effectively.

EFFECT OF IODIZED OIL OF THE MUCOUS MEMBRANE

The study of the retention of iodized oil in the maxillary sinus as to whether it might mask the picture by causing an edema of the mucosa, was further checked by some animal experimentation. Four dogs were anesthetized and lipiodol injected into the right maxillary sinus of each, the left sinus being kept as a control. The naris on the right side was plugged with moist cotton to retain the oil since the dog's ostium permits very free empyting of the sinus. X-ray films were then made. Mucosa from both right and left sinuses were taken on each of four succeeding days. When compared microscopically no evidence of edema or destruction could be found in any of the specimens studied. A second series were run as controls and these likewise were negative. Apparently the mucosa of the sinus in the dog is not sensitive to iodized oil in the proportion of one part lipiodol to two parts of petrolatum. Only one patient in the series here reported showed sensitivity to the iodized oil. This individual reacted as an ordinary vasomotor rhinitis case.

EMPTYING TIME

Very little emphasis has been placed upon the emptying time of the maxillary sinus as a diagnostic aid. Proetz[2] has found it of sufficient value to follow the immediate films by another in seventy-two hours. To date no records have been published as to the average emptying time of the normal

sinus or that of pathological ones. We have made observations on twenty-five cases. Twenty of these had films made in forty-eight hours and sixteen were still full or partially so at the end of this time. Twelve of these or 75 per cent showed positive evidence of pathology, while four were considered negative for filling defect. Of the four which were empty in forty-eight hours, no filling defect was found in the immediate films in any of them. The remaining five cases of the total series were checked as follows: Two in twenty-four hours with much retention and filling defects; the other three in seventy-two hours, and all were positive for retention and pathology.

There are several factors which must be taken into consideration regarding the emptying time of the maxillary sinus:

1. Anatomical and pathological conditions in the nose itself. This refers to deflected septum, hypertrophied turbinates and polypi. In going over this series, twelve had one or more of the above conditions, while thirteen showed free ventilation.

2. Pathology within the sinus itself. It is obvious that any pathology about the ostium retards emptying. This is frequently demonstrated by iodized oil.

3. Proetz[2] has considered one's habits of sleeping and nose blowing as factors.

There are two valuable points to be gathered in checking the emptying of the antrum:

1. Pathological defects are frequently brought out in 48 to 72 hours which were obscured when the sinus was full. This is particularly true of polypi. A thickened membrane may be more pronounced also; however, errors in interpretation may arise due to the oil conforming to a partially filled normal sinus. These conditions have been described in detail by Fraser.[3] Anderson[4] has used the fluoroscope in partially filled sinuses to bring out abnormalities.

2. There is probably a rate of emptying of the maxillary antrum which is pathognomic of disease. Our series of cases is too small to draw any conclusions, but the study will be continued for future consideration.

COMPARATIVE DATA ON OPERATED AND NON-OPERATED CASES

Two hundred and twenty-five cases were injected with lipiodol, most of which were bilateral fillings. The majority of these patients were referred to the Division of Rhinolaryngology from the Clinic as diagnostic problems. Fifty patients received a Caldwell Luc operation. Of the remaining 175 cases, 70 per cent had positive lipiodol findings and a majority of these were advised to have operative work done. Our interest centered in the reliability of lipiodol findings, not only as a diagnostic aid but also as to how far they might be depended upon to govern the type of therapy to be pursued.

A table of comparisons will first be considered before reporting individual cases as examples.

Table No. 1—Comparisons in Operated Group

		Percentage of Accuracy
Operations 50 Positive Cases	*Lipiodol* 48 Positive, 2 Negative	96
Operations 35 Positive Cases	*Plain X-rays* 31 Positive, 4 Negative	79
Plain X-ray 35 Cases	*Lipiodol* 29 Agreed, 6 Disagreed	82.8
Operations 32 Positive Cases	*Washings* 14 Negative, 18 Positive	56
Operations 46 Positive Cases	*Transillumination* 40 Positive, 6 Negative	87
Washings 31 Cases	*Lipiodol* 18 Agree, 13 Disagree	58
Transillumination 46 Cases	*Lipiodol* 38 Agree, 8 Disagree	82.5

Table No. 2—Comparisons in Unoperated Group

		Percentage Agreement
Plain X-ray 83 Cases	*Lipiodol* 64 Agree, 19 Disagree	76
Washings 98 Cases	*Lipiodol* 55 Agree, 43 Disagree	56
Transillumination 163 Cases	*Lipiodal* 111 Agree, 52 Disagree	68
Total Cases Unoperated 175	*Lipiodol Positive* 123	70

The following cases are presented as examples of the series to show the value of lipiodol as a diagnostic aid where other methods of examination may be confusing. Also the degree of accuracy between lipiodol findings and those at operation.

Case 1.—J. B. D., male, age 52.

History: Submucous resection in 1924. Lately post-nasal dropping and colds frequently.

Examination: Polyp right middle meatus. Sinuses transilluminate cloudy both right and left. The right sinus only is washed and contains a few shreds.

X-ray: Lipiodol—Immediate films: Right antrum is fairly well visualized, but definite thickening of

the membrane is present. Left antrum shows a small amount of lipiodol. The outline is quite irregular and shows evidence of pathology. Impression: Chronic antra, bilateral, particularly the left. Lipiodol—48 hours: Large amount remaining in right and small amount scattered throughout left, showing moderate retention.

Operation: Both antral cavities are found to be practically filled with polyps and some encapsulated pus, the left more pronounced than the right.

Microscopic: Sections show epithelial lining of sinuses markedly hypertrophied and arranged in many rows which are well preserved. The epithelium and also the stroma shows rather intense infiltration by round, wandering cells and plasma cells. Eosinophiles are abundant.

Discussion: This case presents a relative relationship between lipiodol and operative findings; however, polypi were not detected in lipiodol films. Retention on the right side was due to antral polyp in the middle meatus. The left side showed less lipiodol in both the immediate and the forty-eight hour films, this was explained by the greater amount of polyposis in this antrum.

Case 2.—J. U., male, age 64.

History: Asthma. Frequent head colds, attacks of nasal blocking.

Examination: Sinuses—Transilluminate clearly right and left. Washings clear.

X-rays: Plain film—Definite clouding of both antra. Lipiodol: Immediate—slight thickening of membrane of both antra. 48 hour—Right still quite completely filled. Left—half filled. 96 hour—Almost complete retention in right antrum and a considerable amount in the left. Some increase in distance between lipiodol and bony outline on right, less on left.

Operation: Definite thickening of mucous membrane of both antra, right more than left. Some small polypi in base of each and some around the ostium of each.

Discussion: The interesting point here is the value of delayed emptying which prompted surgical intervention. Transillumination, washings, plain and immediate films were confusing. Polypi in the sinuses around the ostia accounted for the delayed emptying and were not discovered except in delayed emptying time films.

Case 3.—F. S., male, age 39.

History: Asthma, Caldwell Luc, right, six years ago. Antro meatal six weeks ago. Much post-nasal discharge. Worse with asthmatic attacks.

Examination: Sinuses: Transilluminate cloudy. Washings—pus right and left.

X-ray: Plain film: Thickening of membrane right and small polyp in the base. Left is clear. Lipiodol—Immediate—Some thickening of mucous membrane at base of each—right more than left. 48 hour film—Considerable lipiodol in both antra, particularly the left. There is thickening of mucous membrane.

Operation: Much to our surprise, on opening each antrum, we find them filled with polypi and cystic abscess formation.

Pathological Examination: Sections show the sinus lined for the most part by several rows of cuboidal epithelium. The underlying tissue is intensely infiltrated by round, wandering cells, eosinophiles and plasma cells, eosinophiles predominating.

Discussion: All types of examination check for pathology but the degree was disappointing as found at operation.

Case 4.—A. M., female, age 22.

History: Nasal obstruction and sneezing attacks lasting a day or so winter and summer. Post-nasal dropping.

Examination: Sinuses—Transilluminate clearly on right and left. Washings clear right and left—much pain.

X-ray: Plain film: Definite clouding of the antra. Lipiodol: Very small amount of lipiodol in left antrum. Remainder of cavity appears filled with thick mucous membrane. Right side has considerably more lipiodol. Mucous membrane quite thick and irregular.

Operation: Caldwell Luc. Both antra were almost filled with polypi and thickened membrane. There is practically no cavity on the left side at all.

Discussion: This case is presented to show confusion of transillumination and washings with plain and lipiodol films. The pathology found corresponds with the lipiodol films. The polyposis was extensive and confused with thickened membrane in films.

Case 5.—L. H., female, age 35.

History: Asthma. Polyps removed during 1916, also turbinectomy done. Post-nasal dropping and slight obstruction. No acute sinus infection known.

Examination: Sinuses—Transillumination—Hazy right and left. Washings are clear right and left.

X-ray: Plain film—clear. Lipiodol—outlines irregular, evidence of marked thickening of mucous membrane, both sides.

Operation: Right—polypi present with thickened membrane. Left—partition bony and membranous—not complete. Polypi in both compartments.

Discussion: Lipiodol films made the diagnosis where transillumination, washings and plain films failed.

Case 6.—R. N., male, age 31.

History: Considerable dropping post-nasally. Very little discharge anteriorly, rather frequent and long continued colds in winter.

Examination: Sinuses: Transilluminate cloudy right and left.

X-rays: Plain film—slight suggestion of hazing of both antra. Lipiodol: Left fairly well filled and shows slightly thickened membrane. Right shows considerable thickening.

Operation: Caldwell Luc. Mucous membrane on right side is thick. That on the left is practically normal.

Discussion: This case is used to illustrate the possible value of lipiodol films in determining the type of operation to be used. A window operation would seem to be sufficient here.

DISCUSSION

In the study of this group of cases some interesting points are disclosed. An attempt was made to evaluate lipiodol as a diagnostic aid. It was compared in fifty operated cases by the Caldwell Luc method and found to check in 96 per cent as to the presence of pathology. All these cases at operation showed some grade of pathology. The desire was to show a close degree of pathology between lipiodol and operation, but it was found that this was only relative. Polypi shown on the lipiodol films were always found to be present at operation. The greatest discrepancy came in the presence of small polypi and polypoid membrane. The lipiodol films usually pictured these as varying degrees of thickened membrane.

Emptying time and pathology not shown in the immediate films were sought in succeeding examinations. Only a small series of twenty-five cases were studied in this manner. It was found that pathology either in the nose or sinuses or both usually ex-

plained the possible delay in emptying. In some of the cases pathology was not seen in the immediate films to suggest the possibility of a delay in emptying and consequently a factor for retention of infection. Again it was found that partial emptying sometimes revealed polypi and thickened membrane, which were not disclosed when the sinus was full. These observations would seem to justify follow-up films in forty-eight or seventy-two hours where the immediate films seemed normal and yet there was a suspicion of sinus disease. The question of increased thickening of membrane in some of these cases brought up the problem as to the effect of iodized oil on the mucous membrane when left in contact with it two or three days. The studies carried out on the dog, as noted in a preceding paragraph, disproved any detrimental effect in that animal. The privilege of examining normal human membrane under similar conditions has not as yet been afforded.

The other methods of examination of the maxillary sinus, such as transillumination, plain X-ray films and washings, fall considerably behind lipiodol as noted in Chart 1. Transillumination came nearest to lipiodol, having an accuracy of 87 per cent. Plain X-ray was second to transillumination with a percentage of 79. Washings were the most disappointing, showing only 56 per cent. This is a very significant and interesting fact. Before the days of iodized oil a cloudy sinus and clear washings with a negative nose usually passed the sinus as not having significant pathology in it. Today, one looks with suspicion upon a suspected sinus with negative washings until a lipiodol film has been studied.

CONCLUSIONS

1. Two hundred and twenty-five cases had the maxillary sinus or sinuses injected with lipiodol. The Caldwell Luc operation was done on fifty positive cases.
2. Of the one hundred and seventy-five cases not operated—positive lipiodol films were present in 70 per cent.
3. Lipiodol agreed as to the presence of pathology in 96 per cent of the operated cases.
4. The character and extent of the pathology was only relative when the lipiodol findings were compared with those at operation.
5. Forty-eight or seventy-two hour films sometimes reveal pathology not seen in the immediate films.
6. Washing of the maxillary sinus was dependable only to 56 per cent as compared to 96 per cent by lipiodol.

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DISCUSSION

Dr. W. E. McGarvey (Jackson): I wish to compliment Dr. Whitney on the comprehensive way he has discussed this subject. I note that he has confined his remarks to the injection of lipiodol in the maxillary sinus. In my practice where the patient has to go several blocks to have an X-ray taken, its use in the other sinuses has not proven very practical. Even in the antrum I have found that a small amount of the lipiodol has been lost before the X-ray film is taken. This fact is demonstrated when the right antrum, for example, is injected—the plate with the left side of the face next to the film shows a larger opaque area than when the right side is next to the film. In the first position the base of the antrum is filled while in the second position the lipiodol gravitates into the apex and is insufficient in amount to completely fill the base, giving thereby a smaller opaque area. Misinterpretation of plates must occasionally be watched in the lateral positions where the infraorbital and alveolar canal ridges might resemble filling defects.

Dr. Whitney has pointed out the comparative advantages of lipiodol injection with the usual X-ray film, transillumination and irrigation, the latter being least reliable. One point I have found of value—that is, when there is an obstruction to the return flow on irrigation I usually try to have a lipiodol injection made to determine whether there is pathology, especially around the ostium. As has been pointed out, a subsequent film to determine the emptying time is of value, indicating frequently a thickening of the mucosa around the ostium or a loss of the function of ciliated epithelium. However, from a theoretical standpoint I would think that an opaque powder insufflated into the antrum and X-rayed with a series of films would be a truer criterion of the action of the cilia than the oil which gravitates out readily. In this regard I would like to ask Dr. Whitney two questions. What is the action of the ciliated epithelium in clearing the lipiodol out of the antrum; and secondly, whether Dr. Whitney feels justified in doing any radical surgery when he feels sure that the function of the ciliated epithelium has been impaired or the mucosa thickened. Certainly the use of lipiodol has increased our knowledge of sinus disease. In this morning's discussion a statement was made that hyperplastic mucosa does no relative harm. Yet if the ciliated epithelium has lost its function and there is a focus of infection are we not justified in taking definite steps to eradicate it? I feel since the introduction of lipiodol and the ability to better demonstrate antrum pathology that our surgery in this area is becoming more radical.

Dr. Carl F. Snapp (Grand Rapids, Mich.): I wish to thank Dr. Whitney for bringing this subject before us. It is a very timely one and one which is worthy of much study and investigation. I have had considerable experience with the use of iodized oil in the antra, but very little with its

use in the other sinuses. I find it invaluable in diagnosing hyperplastic conditions of the antrum and feel that it is undoubtedly of equal value in the other cavities. The chance for error, however, would seem greater than in the antrum. One point which should be mentioned in this connection is the possibility of an allergic reaction in the sinus which may reveal a marked filling defect at one time and later present a perfectly normal lining membrane. This has been demonstrated by Proetz and was referred to by Dr. Iglauer this morning in the conference. It is believed that the oil may act as an irritant in some instances, thereby setting up on allergic reaction.

DR. E. L. WHITNEY (closing discussion): Regarding Dr. McGarvey's question as to the action of the cilia of the mucous membrane, I cannot give any more information than the experimental work, which has already been done. Some antrums opened by the Caldwell Luc method will show areas of fairly good looking mucous membrane. In such cases, we do not remove this but only the polypoid sections. However, if I am dealing with an asthmatic patient, I believe in removing the entire mucous membrane as nearly as possible. Sections of the mucous membrane are regularly sent to the laboratory for study. I have several slides with me, but time will not permit showing them. They are typical of cellular infiltration with increase of eosinophiles in the asthmatic cases and many of these sections show ciliated epithelium partially destroyed.

As to the method of transillumination, I have used the Freer-Jackson transilluminator.

I think Dr. Robb brought up a good point about the density of the oil. In our observation, I think, it is not wise to have the oil too dense, particularly in the immediate X-ray films, because it sometimes obliterates polypi in the deeper portions of the sinus. The only object in not using a lighter oil is that it will run out of the sinus more quickly.

INTESTINAL ANOMALY REVEALED BY EMERGENCY OPERATION FOLLOWING MOTOR ACCIDENT

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I have always believed that a physician in reporting a case should be influenced by the desire that others may profit from his experience and results, or that his case may be so unusual that it merits particular attention. There has been no new or unusual treatment tried in my case and probably the only value of this paper may be to encourage the men who are located in more or less isolated regions, as I am myself, to proceed along similar lines when confronted by the problems that arose in this instance. Therefore my reason in reporting this, as you will see, is to bring before you a most amazing series of incidents that followed—let us say—an ordinary automobile accident.

Katherine K., a slender, well-proportioned girl 26 years of age, weighing 122 pounds, and five feet eight inches tall, was admitted to Pleasant Home Hospital at 5 p. m. on March 2, 1930. At the time of admission she was in great shock and pulseless, but with no indication of internal hemorrhage. The right leg was in marked adduction and about four inches shorter than the left. She was put to bed and treated for shock, but nothing was done to increase the blood volume or greatly raise the pressure.

The following day X-ray examination was completed and, as Fig. 1 shows, she had a complete shattering fracture of the right acetabulum with a posterior dislocation of the femur; almost complete separation of the sacro-iliac synchondrosis and a short, incomplete, isolated fracture of the ilium.

On March 4, reduction of the femur under the fluoroscope was attempted and it was found that the head of the femur would pass through the acetabulum into the pelvis. She was placed in a frame with 26 pounds longitudinal and 16 pounds lateral extension instituted.

Figure 2 is a view of the pelvis at the time traction was applied. Under this treatment recovery was uneventful until the night of March 29 (twenty-seven days after her admission to the hospital), when she became suddenly ill with cramps in the lower abdomen and with pain and rigidity in the right quadrant low down. She had menstruated two weeks before her accident and as there had been no menstruation during her hospitalization it was at first thought her pain was menstrual cramps. However, the next day, March 30, she was unimproved. Her temperature went to 100 degrees, pulse to 160, while the white blood count was 22,300. Differential count was 91% polymorphonuclear. On examination via the vaginal and rectal routes a large mass was found low in the right quadrant which seemed to involve the right tube. In spite of a negative sexual history a tentative diagnosis of ectopic pregnancy was made.

The next morning, March 31, fecal vomiting had started and her abdomen began to fill with fluid. White count had dropped to 16,500, but an emergency laparotomy was performed beginning at 1:30 and ending at 2:30 p. m. The abdomen was filled with fresh blood and serous fluid. Acute peritonitis was apparent. The mass in the right pelvis was about the size of a small orange and adherent to the pelvic wall opposite the acetabulum. It was readily stripped loose and was found to be the omentum undergoing decomposition.

The pathological report was as follows:

Specimen is omentum 7 x 5 x 1.5 cm. There is a rather extensive hemorrhagic area, probably where the specimen was in contact with the pelvic wall, and there is some organization present. Sections reveal hemorrhagic areas and some connective tissue changes. There are some thickened blood vessels, and a few blood vessels in sections from the middle of the specimen which are partially thrombosed and

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there is organization taking place. There is also some hyalinization.

The end of the cecum was located high, just above the level of the umbilicus, and except for the peritoneal involvement had a normal appendix which was removed. The transverse colon was small and very high, lying across the stomach. The entire large bowel was collapsed.

It was impossible to take time to study the attachments of the large bowel because of the serious general condition of the patient, and there was still an unlocated abdominal hemorrhage. A mass comprising several loops of small intestine which had become recently adherent was found just above the umbilicus and slightly to the right of the median line. The adhesions were quickly and easily separated and it was found that the ileum passed through a small tunnel underneath or behind the duodenum, just below the duct system. Here was the obstruction. It was caused by an inflammatory congestion of the ileum and the somewhat fibrous tunnel through which it passed. The peritonitis was brought about by failure of the omentum to completely organize. The portion of the ileum passing through the tunnel and six or eight inches distal to that area was becoming gangrenous.

Curiously, the source of hemorrhage at this time was located underneath the ileum and was from a tear extending from the tunnel down into the mesentery of the small intestines and caused by pressure from the distended ileum. This was repaired with a suture through the mesentery. The tunnel was then carefully enlarged laterally and downwards along the duodenum, to avoid mesenterial hemorrhage and the obstruction was overcome. After enlarging the tunnel, the cecum could be pulled into it, or, grasping the cecum and drawing laterally, several inches of the ileum could be pulled through.

A cigarette drain was then placed in the pelvis and the abdomen closed and a transfusion given. Following a very stormy four days the patient made an uneventful recovery. Figure 3 is a graphic chart showing the patient's record two days before operation, day of operation, and the following four days. At the end of five weeks extension was discontinued and the patient put in a cast extending from foot to umbilicus, with the knee slightly flexed and the leg in abduction and slight external rotation. She was then removed to a hospital in her home city to convalesce from her pelvic injuries. Figure 4 shows the position of the pelvic bones at the time she left the hospital on April 23. Thus it may be seen that she still appears to be making a good recovery.

Fig. 1. Skiagraph showing the patient's pelvis on admission to the hospital; i.e., fracture of right acetabulum, dislocation of femur, complete separation of the sacro-iliac synchondrosis and small isolated fracture of the ileum.

Fig. 2. A second view of the pelvis at the time traction was applied.

I have as briefly as possible outlined the different situations that arose with this patient and the method of handling them, so I shall now summarize them as follows:

1. The Omentum. We know the omentum to be a very variable structure in size and location and sometimes to be entirely absent. In the fetus it is composed of two layers or folds, an anterior and posterior. The former passes over the transverse colon, but is not adherent to it and faces forward into the greater peritoneal cavity. Turning backward on itself it forms the posterior fold which extends up to the transverse colon and would face into the lesser peritoneal cavity. In the adult the two layers are fused into one. It extends from the greater curvature of the stomach and receives its blood supply from long, very slender vessels which come from the gastro-epiploic system. The vessels extend down the omentum to the folded border and then upward in what was the posterior fold to anastomose with the vessels of the transverse colon.

As already stated, the omentum was found in a mass adherent to the right pelvis. We know that the patient was rolled and

twisted but how the omentum was torn loose must be a matter of conjecture. It was gratifying to realize that I had done nothing in treating her shock which would materially elevate her blood pressure. It is highly probable that whatever tore or twisted the omentum loose also strangulated the blood supply for, as already stated, the patient had no symptoms of hemorrhage until the morning of her operation.

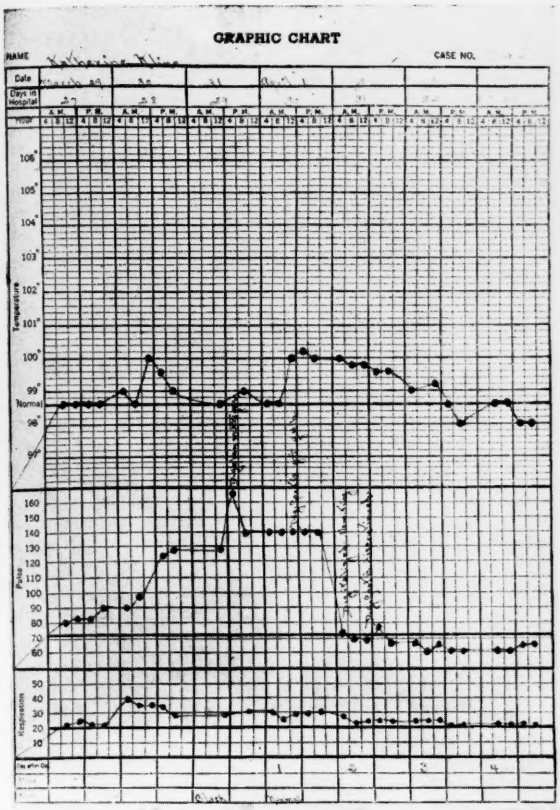

Fig. 3. A graphic chart showing patient's record two days before and four days after operation.

2. The Anomaly of the Ileum. We know that during its development the abdominal portion of the alimentary canal may undergo a variety of perversions. Developmental displacements of the foregut and hindgut are exceedingly rare, while malpositions of the midgut (the intestine from the duodenal papilla to the left third of the transverse colon) is frequently in the literature, especially in the surgery of infancy.

The reason for the greater frequency of error in the midgut is to be found in the more complicated evolution of its natural disposition in the abdomen. In order to understand more clearly what took place in this patient, it would be well to review the embryology of the fetus up to where the anomaly which I found could develop. "The first indication of the alimentary canal is the entodermic vesicle of the zygote. By a constriction the vesicle becomes divided into an intra-embryonic portion—the future alimentary canal and its appendages—and

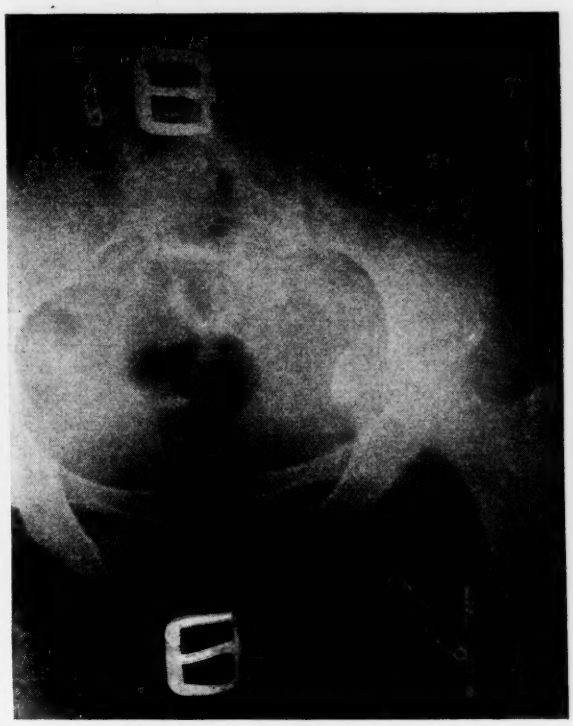

Fig. 4. Position of the pelvic bones on leaving hospital April 23, 1930. This patient is now walking without a limp and with but very slight pain (November 29, 1930).

an extra-embryonic portion—the yolk sac; the intervening constriction is the vitello-intestinal duct." As the embryo elongates, the alimentary canal takes the form of a tube, with its subdivisions the foregut, midgut, and hindgut. These parts constitute three distinct loops. It is based on blood supply: this is distinct for each part, the celiac axis, superior mesenteric, and inferior mesenteric arteries respectively. The three subdivisions, applicable to function—the foregut, digestive; the midgut, absorptive; the hindgut, excretory are suspended by the common dorsal mesentery (Fig. 5).

We are particularly concerned with the midgut, which has a ventral attachment, by the vitello-intestinal duct, to the yolk sac. This is lost at an early period. The stomach and the duodenum down to the biliary papilla are formed by the abdominal portion of the foregut and as early as the fourth week, the oblique direction and bulging curvature of the stomach appears, show-

ing the result of its unequal growth. Thus the shape and posture of the stomach depend on intrinsic forces and are very constant. "The upper part of the duodenum is deviated to the right by the stomach; its mesentery becomes thickened and shortened, 'hitched up' by the band, is bent by it at the junction of midgut and hindgut; this flexure is known as the colic angle. The colic angle is, at a very early period, a fixed point at the upper end of the hindgut, from which the midgut loop depends. It will be noted

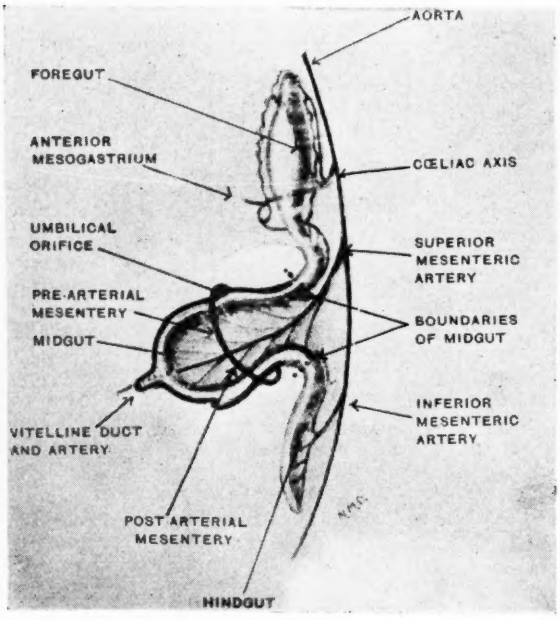

Fig. 5. A figure of the embryo showing the first indication of alimentary canal around the fifth week.

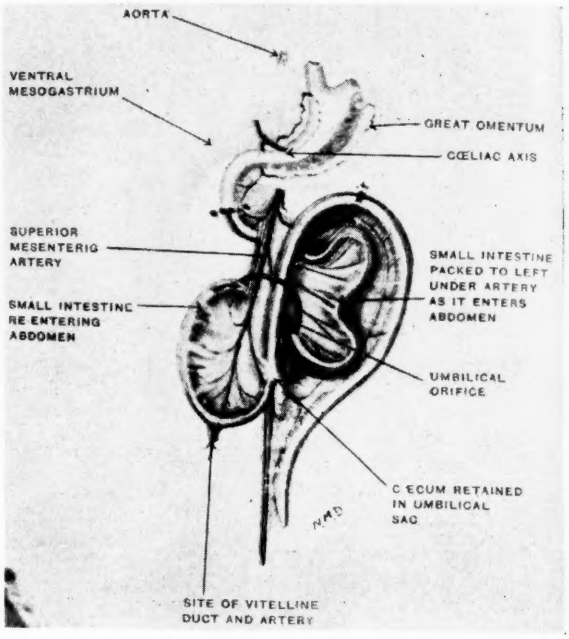

Fig. 6. Development between fifth and tenth weeks.

and into the latter the dorsal pancreatic rudiment grows during the fourth week. The position of the upper part of the duodenum is equally as constant as that of the stomach; the growth of the pancreas into its mesentery is responsible for its curvature and fixation. Thus the duodenum at the level of the biliary papilla is, at a very early period, a fixed and constant point, a little to the right of the midline, from which the midgut loop depends (Fig. 6).

In the British Journal of Surgery, Vol. 11, Dr. Norman Dott gives in his "Anomalies of Intestinal Rotation," the following description of the embryological rotation through its first and second stages. "At first the hindgut occupies the middle line of the abdomen. From its upper end a 'retention band,' a mesenchymal thickening in the mesentery, passes upwards to the condensed tissue about the origin of the superior mesenteric artery. This retention band does not keep pace in growth with the gut or mesentery, so that it forms an anchorage by which the upper end of the hindgut is relatively approximated to the origin of the artery as growth proceeds. The gut, being that the duodenum and colic angle are close to each other, and, being fixed points, the growth of the embryo causes their relative approximation, so that they form a narrow isthmus — the duodeno-colic isthmus — to which the two limbs of the midgut loop are attached.

"The midgut grows very rapidly in length, and forms a large loop, convex forwards. Already at the fourth week the vitello-intestinal duct has lost its connection with the yolk sac and umbilical cord. The rapid growth of the midgut loop and of the liver so diminishes the available abdominal space that the former is extruded into the root of the cord as a temporary and physiological umbilical hernia. At the apex of the herniated loop is the former site of the vitello-intestinal duct and the termination of the superior mesenteric artery—formerly the right omphalo-mesenteric artery. The vessel runs from the dorsal aorta, between the closely approximated ends of the midgut loop, to its apex; it lies in the mesentery of the loop, and sends branches forwards to its anterior segment and backwards to its posterior segment. The loop still lies in the

sagittal plane; its anterior segment is the pre-arterial segment, and its half of the mesentery the pre-arterial mesentery; the posterior segment is the post-arterial segment, and its half of the mesentery the post-arterial mesentery. During the fifth week

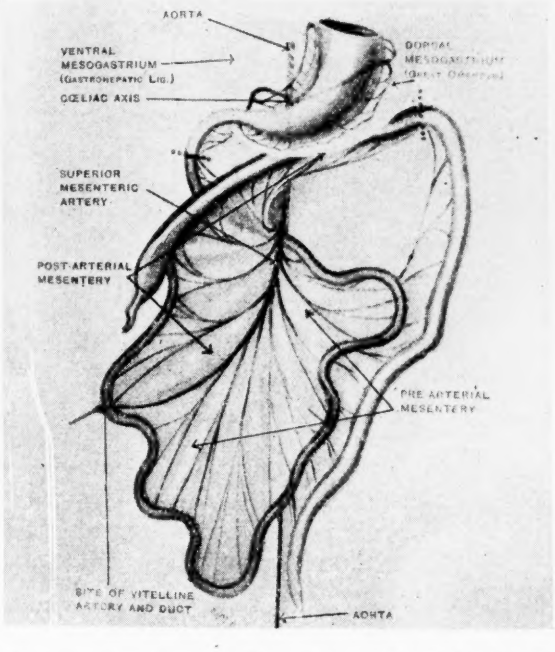

Fig. 7. Second stage of rotation completed shortly after the tenth week.

the bud for the ceco-appendix appears on the post-arterial segment of the loop.

"We have now traced the development of the midgut loop up to the fifth week. It constitutes a loop of bowel projecting forwards in the sagittal plane into the umbilical cord. The base of the loop is narrow and contains the artery of supply between its closely approximated segments. The basal attachment of the pre-arterial segment is slightly to the right of the midline on account of its duodenal attachment. We are now in a position to study the rotation of the loop.

"The first stage of rotation takes place while the loop lies in the umbilical cord, between the fifth and tenth weeks. The second stage occurs mainly during its reduction into the abdomen at the tenth week, and is completed when the cecum reaches the right loin at the eleventh week. The third stage progresses from that time until birth or a short time after it.

"The first stage of rotation. The left umbilical vein persists; the right one disappears. As the right lobe of the liver enlarges and descends, the left umbilical vein is carried downwards and to the right. As it deviates in this direction it exerts pressure upon the pre-arterial segment of the midgut loop near its base. The gut is carried downwards (caudally) and to the right. The

Fig. 8. A sketch of the anomaly when produced in the cadaver very closely resembles the anomaly found in this case.

pre- and post-arterial segments being placed side by side within the narrow circle of the umbilical orifice, the latter is naturally displaced upwards (cranially) and to the left by the former. The intestine rapidly increases in length, so that there results an S-shaped flexure, the pre-arterial segment forming the right half, and the post-arterial the left half. This is the first stage of rotation. Failure of rotation up to this stage occurs only in connection with extroversion of the cloaca, and the term 'non-rotation' refers to a failure in the second stage. During their stay in the umbilical cord, the pre-arterial grows more rapidly in length than does the post-arterial segment, so that the former and its mesentery become disproportionately elongated. In this way the superior mesenteric artery acquires a relatively closer relation to the post-arterial segment. The cecum and adjacent colon have meanwhile increased in thickness, and constitute a considerable swelling upon the post-arterial segment.

"The second stage of rotation. About the beginning of the tenth week the midgut loop is returned to the abdominal cavity. Frazer and Robbins point out that it is not possible for the bulky hernial content to return en masse through the narrow umbilical orifice. The cecum especially offers resistance to this passage. They believe that the pre-arterial segment returns first, in continuity of its length, basal end foremost. The

cecum, adjacent ileum, and colon are still in the cord, and they hold with them the termination of the superior mesenteric artery. It will thus be seen that during the return of the small intestine the artery is anchored forward to the umbilicus and is suspended across the abdomen between its origin from the aorta and the umbilicus. The small intestine enters the abdomen on the right side of the artery. As its coils collect within the cavity, those first reduced are pushed into the available space behind the outstretched artery by those following on. The hindgut and its mesentery, which occupy the middle line, are pushed before them—folded to the left and backwards (descending colon). The coils bulge upwards under the colic angle, tending to displace it further up (splenic flexure). The last coil of the ileum carries the superior mesenteric artery with it as it now enters the abdomen. At length the cecum is reduced. The cecum now lies free in the region of the umbilicus on a plane anterior to the small intestine and to the mesenteric artery; from here it can pass in any direction. The colon, tending to straighten out, carries the cecum upwards and to the right. The colon comes to lie across the pedicle of the intestinal mass at the origin of the superior mesenteric artery, and the cecum attains a position below the liver. Elongation of the colon causes the cecum to descend into the right loin. The second stage of rotation is complete. It will be noted that the ultimate result of the second stage of rotation is an anti-clockwise turn about the axis of the superior mesenteric artery of 270 degrees from the primitive sagittal position of the loop (not 180 degrees as is often stated). In this way the duodenum is caused to cross behind the superior mesenteric vessels near their origin, while the colon crosses the same point anteriorly" (Fig. 7).

In the case of this young woman the development proceeded normally up to the end of the second stage of rotation or when there is no fusion of the common mesentery and leaving the intestines with their mesenteries attached around the superior mesenteric, those intestines are therefore free to move in almost any direction. By studying Figure 7, which represents the end of the second stage, and continuing to rotate the small intestine contra-clockwise around the superior mesenteric artery for at least 180 degrees, we will have the condition which I found as represented by Figure 8, which is a sketch showing the anomaly when produced on the cadaver.

As we know, the normal position of the intestinal tract depends on the bulk of the cecum retaining itself to the last in the hernial sac, while the more easily reduced small intestine enters the abdomen first. So, therefore, the factors which would render the small intestine more difficult of reduction, or the cecum easier, or the umbilical orifice so large that they would be reduced with equal facility, would cause an intestinal anomaly of some description.

DISCUSSION

DR. S. B. YOUNG (Cass City, Michigan): I administered the anesthetic to the patient during the operation Dr. McCoy has just described. He carefully demonstrated to me the position of the ileum, which was, as he described, posterior to the duodenum a short way from the stomach. He neglected to say that a resection of the ileum was discussed but the patient's general condition would not permit it.

DR. N. J. MALLOY (Gagetown, Michigan): It was my privilege to assist Dr. McCoy in the operation he has described and the situation was as he has explained. When I first saw the condition, the intestinal anomaly, I wondered, inasmuch as the omentum had been torn loose, if at the time of the accident the bowels could have been twisted to the position in which he found them, but the fibrous type of channel or tunnel, I think he called it, underneath the duodenum through which the ileum passed, caused me to believe it was some type of an embryological mishap. I have been much interested in his description of the probable embryology of his case.

A NOTE ON BLOOD TRANSFUSION

WITH AN ACCOUNT OF A FATAL REACTION

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Blood transfusion being a relatively simple and safe operation,[2] it is the purpose of this paper to contribute a few facts which it is hoped will enliven interest and increase its uses. The transfusion of blood dates back to ancient, probably as far back as Biblical, times. The Hebrews, Egyptians and Syrians practiced transfusion and there are Greek and Roman writers who speak of having witnessed the operation. The earliest authentic case of blood transfusion is that of Pope Innocent VIII performed in April, 1492. The aged Pontiff was failing fast. In three attempts to rejuvenate him, three young boys were bled to death and their blood transfused.

In the early part of the 17th century, Harvey discovered the circulation, which had its influence on transfusion. Samuel Pepys, in his famous diary, under the date of November 21, 1667, speaks of the college hiring a man for twenty shillings to have sheep blood let in his body. They transfused twelve ounces, which is what they computed would be let in one minute's time by the watch. Again, November 30, 1667, he states he talked with the man, who was well, and willing to have the operation performed again. Elshaltz (1677) published a book on transfusion.

For several hundred years very little appears to have been written; transfusion seems to have fallen into disrepute because of public opinion. Blundell, in 1818, revived the operation in England. He is the first on record to employ syringes, using a single syringe. Later he modified his technic to use multiple syringes. With the knowledge of the circulation, Carrel's direct end-to-end suture of the blood vessels and Crile with his cannula, also with its modification, bring us down to 1909. Later in 1909, Brewer and Liggett suggested the use of paraffin coated tubes. One year later Kimpton-Brown brought forth their method which is in general use today. Linderman (1913) advocated the syringe method, using a special cannula with a number of syringes. Unger (1915) offered another modification, which is still in use today. During this time investigators were working on the chemical side in an effort to prevent coagulation. Hirudin and sodium citrate were found to be most efficient. Hirudin is the active constituent of the oral secretion of the leech. Owing to the expense and inability to get hirudin, sodium citrate seems to have established its place. Hustin, Lewisohn and Weil perfected the use of sodium citrate. So far in the history we have brought forth three definite methods still in use today, namely, Kimpton-Brown paraffin coated tubes, Unger (with its modifications) syringe method and the chemical or sodium citrate method. It is also interesting to note that Lynch[4] divides the history into three periods, namely: (1) Period of Defibrination, 1492-1498. (2) Period of Direct, or Crile Period, 1898-1913. (3) Period of Indirect Transfusion, with the use of anti-coagulants and whole blood, 1913 to date.

With a definite knowledge of the technic, it occurred to someone that some research must be done in regard to the blood. Isoagglutinins have been recognized for thirty years. In 1899, Samuel G. Shattuck recognized isoagglutinins and Landsteiner showed that they existed independent of health or disease and that they followed definite laws. The basis of their scheme of classification was the assumption of two specific isoagglutinins in the serum and two corresponding agglutinogens in the erythrocytes. The agglutinogens and the agglutinins were considered reciprocal, that is, the presence of an agglutinen in the blood precludes the presence of a corresponding agglutinogen and vice versa. Landsteiner first divided his classification into three groups. Jansky, in 1907, reported four groups. Moss, unaware of the work of Jansky, again reported four groups. Moss and Jansky did not number their groups in the same way and much confusion resulted. Moss is the most accepted classification but by prior-

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ity, the classification should be named from Jansky.

In determining the compatibility of the blood of one person with that of another for transfusion purposes, it has been found that there are four types or groups of individuals. To obtain the information desired, the isohemagglutinins (found in all human blood) are utilized. The phenomenon is that of simple agglutination in which the serum of one individual is used against a suspension of red blood cells of another. In carrying out the test for grouping donors or recipients, only two types of sera are necessary, those being Types II and III. The technic will not be reviewed here, as it may be found in any textbook. The test sera should always be fresh. The group of an individual always stays the same; that is, it never changes after transfusion.

Recent investigators have found that not only typing is necessary in the selection of a donor. There are many subclassifications, that is all are not compatible with the universal donor (Moss, Group IV). It is necessary to directly match the blood of the donor with that of the recipient. One should never transfuse the patient until he has found the donor compatible by direct matching. I have found the following method very useful. Collect from the patient and prospective donor about 5 c.c. of blood, place in a centrifuge tube and centrifuge. The serum collects on the top. In another test-tube place a small drop of blood in about 1 c.c. of .9 per cent sodium chloride solution. This gives both serum and cells. Using a platinum loop, place a loop of patient cells and donor serum on one end of a slide, on the other end place a loop of donor cells and patient serum, gently agitate each mixture and watch for fifteen or twenty minutes under the microscope. If any clumping occurs in either mixture, the donor is not compatible and a new donor is looked for.

Brines[11] states from his experience that "the universal use of Group IV (Moss) donor is strongly advocated as a means of preventing accidents and reducing the incidence of post-transfusion reactions." Personally I believe that the use of a Group IV (Moss) donor that is directly compatible with the recipient is a further safeguard. Considerable care should be exercised in the selection of a donor. The related are preferred to the non-related and the young are preferred to the old. If possible, time permitting, we should make an examination of the donor for syphilis, tuberculosis and septic conditions. That is one reason why the related are preferred to the non-related. The donor must be of the same race as that of the recipient. In selecting a donor, the amount to be taken should be considered. Of course, this will also be judged from the size of the donor's vessels, his pulse and any psychical occurrences at the time of the transfusion.

During the transfusion, the operator should watch the donor as well as the recipient and if the pallor of the face changes, the blood pressure lowers, the donor has a rapid thready pulse, stop the transfusion. It has been said that the average donor's blood will return to normal in three to six hours. The same donor may be used again. There are cases on record where the donors have served over fifty times. Personally, I have served as a donor in about thirty cases.

In discussing transfusion some time should be devoted to the indications. There are many classifications. They might best be given as follows:

1. Pathological hemorrhage from some hemolyzing toxin, provided its nature is such that the new blood will not be involved through the same action (as would be in the case of pernicious anemia and in leukemia where transfusion might be distinctly harmful). In this I do not want to say that transfusion is not useful in pernicious anemia, as it has prolonged life in many cases, but is useful only as a palliative measure.
2. Loss of normal blood where the loss of blood has been so great that salt solution would not find sufficient blood corpuscles to supply the function necessary to life.
3. Illuminating gas poison. In this it is especially useful after we have abstracted some of the patient's blood.
4. Pathological hemorrhage such as puerpera, jaundice and hemophilia.
5. Hemorrhage of the new-born.
6. Shock.
7. Secondary anemia prolonged from suppuration.

Powell,[8] of Mayo Clinic, has ably stated that transfusion is indicated in all those pathological conditions in which the blood is so altered in quality and quantity that it is unfit to fulfill its physiological duties.

Many surgeons are now using a prophylactic blood transfusion as a routine measure in poor operative risks. Ward[9] has stated that this should be done in all hospitals, especially teaching the interne to do the typing and matching and even the blood transfusion.

Gatch and Little[5] have found the blood loss in the average panhysterectomy to be 340 c.c., radical breast operation 710 c.c. and nephrectomy 816 c.c. If the patient has a preoperative hemoglobin of 50 per cent and then loses the above amount of blood, the loss greatly endangers the life of the patient. This can be avoided by giving the patient blood before the operation. It is said about 800 c.c. of blood would be needed to restore the condition of the blood to normal in about one hour in such cases as the above.

In my own series, I have used blood in two cases of amputation of the leg and one amputation of the arm. In all cases, I believe the transfused blood played an important part in the pre-operative shock and the recovery.

Very little can be found in the literature in regard to contra-indications for blood transfusion. Most surgeons as well as the internal medicine men have declared that nephritis is a contra-indication. There are many cases on record where transfusion has been used in cases of nephritis with a resulting anuria. In several cases decapsulation has been performed to relieve the condition.

Mosenthal and Ashe[12] have been using blood transfusion in the treatment of Bright's Disease. They state that the contra-indication has been based on the following misbeliefs:

1. Blood transfusion elevates and changes a comparatively harmless hypertension into an alarming one.
2. Transfusion may produce toxic material in the blood which the damaged kidney can not eliminate.
3. Transfusion may aggravate an existing renal lesion and thus cause progressive pathological changes in the kidney and accentuate a renal insufficiency.

They have found that transfusions up to 1,000 c.c. do not increase the blood pressure no matter how high the arterial tension might be. It is either hemolysis or anaphylactic shock that causes the death. They have also found that the transfusion of blood will not alleviate the symptoms of uremia brought on by renal insufficiency, nor do they postpone the onset.

Mosenthal[12] states that the anemia in Bright's Disease is due to diminishing the osmotic pressure of the blood, accompanying the lowering of the blood protein; therefore, transfusion should aid in Bright's Disease. Their indications for the use of transfusion in treating Bright's Disease are:

1. As an aid in treating uremia attendant upon renal insufficiency.
2. Relief of severe anemia.
3. As a means of combating edema by raising the osmotic pressure within the circulation through an increase of the proteins of the blood.

Another unquestionable contra-indication is that of myocarditis. Biesenberger[13] transfused a patient known to have myocarditis with 150 c.c. of blood. During the transfusion the patient felt stabbing pain in the heart region, had cyanosis of the face with rapid extension over the entire body and a rapid pulse. The transfusion was ended; oxygen and stimulants were given. The patient died with symptoms of cardiac insufficiency. At autopsy, the cause of death was established to be due to cardiac paralysis of the heart muscle.

John Fitch London[14] transfused seven cases of diphtheria, complicated with myocarditis; six died and one was released from the hospital in moribund condition, a mortality rate of 100 per cent. He states that blood transfusion appears to be contra-indicated in diphtheria complicated by myocarditis. The same might be said of myocarditis alone.

Some comment might be made on the various methods. The citrate method appears to have been the oldest and most used method on account of its simplicity. Sodium citrate destroys the blood platelets, which play an important part in the coagulation of blood. This is exactly what we do not want in severe bleeding, hence the method has been condemned by many surgeons.

Brines[11] has said "transfusion corrects disturbed circulatory balance; provides increased oxygen transportation to the tissues; increases to a greater extent than do lactates, calcium salts or any other substances, the coagulation of the blood; and tides the patient over a critical period, until his blood-forming centers can take up their burden or acquire the proper resistance. It

combats infection by increasing the general resistance and by bactericidal action of the whole blood. It restores the bulk of the blood, but more especially the red corpuscles; and it is important to note that young erythrocytes are better oxygen carriers than old ones." Then if that be the case whole blood should be preferred to citrated blood.

The editorial[6] writer of the Journal of the American Medical Association has said, "While the citrate method should not be abandoned, the whole blood method, whenever possible, should be substituted for it. However, there is never a time when citrated blood is as good as whole blood." Whole blood may be given by the Kimpton-Brown paraffin tube method or by syringes by the direct method. Every operator is partial to his own method. At present I am using the Schannell method, which proves very satisfactory. Unger, with his method, is most always one of choice and one that I personally like. Of course, there are several dangers one must watch, namely, clotting, thrombus and embolism, air entrance, too rapid or too great transfusion, thus over crowding the heart and infection. By ordinary precaution these may be avoided. Transfusion reactions are and probably always will be our greatest hazards. In the case now reported, death was the direct result of blood transfusion. The patient was not gravely ill before the operation and preliminary tests were made with care.

Mrs. N. was referred to me for transfusion with the following history. She was a woman aged 42, white, and had always enjoyed perfect health until this illness. Five days before transfusion she called her family physician, the occasion being swollen hands, face and feet, accompanying her tenth pregnancy. The urine test showed a 4+ albumin and the patient on the verge of eclampsia. The next day she was delivered of a full term child. Owing to her weakened condition and low hemoglobin, transfusion was decided upon. A brother and his daughter were secured for donors. By direct matching, the brother was found to be incompatible and his daughter compatible. Both the patient and donor were typed and found to be in Group IV. At the end of 125 c.c. the patient complained of being nervous and felt warm; the transfusion was held up for a moment as the symptoms passed away. I proceeded as usual until the end of 250 c.c.; she complained of the same symptoms with pain in the heart and chest. Transfusion was stopped entirely and the patient put back to bed. Respiration became labored, increased and the pulse became very rapid. The patient was given stimulants but immediately went into shock and promptly died. Death occurred thirty minutes after the transfusion was ended.

Unfortunately, the urine specimen was not obtained after the patient died, and the serums were discarded, so rechecking was impossible, a lesson to be remembered.

DISCUSSION

In the case reported death might be due to any one of the following causes:

1. Hemolysis from incompatible blood.
2. Over-crowding the heart and myocarditis.
3. Anaphylaxis.

The bloods matched by direct matching and both were in Group IV. Witts[2] has said that agglutinins are present in such a low concentration that they are missed in preliminary tests and when the blood is transfused may cause death.

The patient was an eclamptic and had a probable toxic myocarditis, hence death may have been attributed to this cause. Nephritis may have been an important factor in death but the patients rarely die sudden deaths.

Anaphylactic reactions are rare and the symptoms are limited to dyspnea, cyanosis, swelling of the face and urticarial rashes. The patient had dyspnea and cyanosis, but none of the other symptoms. Sometimes we get reactions from anaphylaxis varying in severity from simple urticaria to sudden death. Reactions are common in 25 per cent of the citrate method transfusions.

Kordenat[7] has said there are three types of post-transfusion reactions:

1. The immediate or hemolytic.
2. Delayed, apparently not hemolytic but proteolytic.
3. Constitutional or monohemolytic.

Our case fell in the first class or immediate reaction; however, the cause of death still remains unsolved.

SUMMARY

1. Transfusion is a relatively simple and safe operation, but not absolutely devoid of risks even in careful hands.
2. The selection of the donor should be made with great care, using a Group IV donor who is compatible by cross matching.
3. Should save the serum and cells to recheck matching in case of a post-transfusion reaction.
4. Whole blood is preferable to citrated blood.
5. Should transfuse early and not late.

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UNDULANT FEVER*

REPORT OF A CASE

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After twenty-five years of more or less academic interest in Malta Fever, the realization suddenly overtook the medical profession in America that this disease was an important health problem. During 1929 a total of 1,301 cases were found in the United States. In Michigan 107 cases have been reported, most of them during the past three years. This is not a large number when compared to other reportable diseases, but it is large enough to present a definite health problem for our state departments.

It is occasionally difficult to determine the source of infection for any one case. Raw milk and other unpasteurized dairy products, and domestic and farm animals are potential sources and have to be considered.

CASE REPORT

A young boy, age 4, was brought to the office giving a history of fever for the past three months, associated with chills. His mother, a trained nurse, gave the following history: "About three months ago the boy began to have attacks of fever lasting a few days and associated with pain in the abdomen and legs. The abdominal pain was also present between the attacks of fever but to a lessened degree. The attacks of fever and chills have been appearing once or twice weekly and often are separated by only a day or so of normal temperature. He has lost considerable weight during this time, and has had a very poor appetite. The temperature often rises to 104° but its usual level during attacks is about 100°. The bowels are regular, moving once daily. He has had a slight cough which has persisted since an attack of whooping cough one year before."

The mother and father were both living and in good health. There were two other children in the family, both of whom were well. They lived on a small farm but the family milk supply was from a local dairy and was pasteurized. There were no cattle on the farm but the child frequently played at neighboring farms where cattle and domestic animals were kept. The water supply was a well, the water from which had not recently been tested.

The child had always been healthy, except for measles and whooping cough, the last of which left him with a slight cough previously mentioned.

On examination the temperature was found to be 100°, with a pulse of 90 and respirations 24. His body was thin and emaciated. The eyes reacted normally and the pupils were equal. The palpebral conjunctiva was pale. The ear canals and drums were free from signs of pathology. There was no tenderness over the mastoid bone. The tongue was coated and the tonsils were small and no purulent material could be extracted. There was no evident dental pathology and no enlarged cervical glands.

The chest expansion was equal and free. There were no abnormal areas of fremitus or dullness. The breath sounds were clear and no râles were heard. The heart was not enlarged and there were no murmurs or irregularities.

The abdomen was distended as by gas, but there was no abnormal dullness. The spleen and liver were not apparently enlarged but there was some tenderness over the splenic area.

The extremities were emaciated but no swelling or redness of the joints could be found. The knee and elbow reflexes were normal.

He was admitted to Mercy Hospital and the following laboratory reports obtained:

Blood: R. B. C. 3,950,000, W. B. C. 10,200.

Hemoglobin 75 per cent, polymorphonuclear count 69 per cent.

Large lymphocytes 14 per cent, small 13 per cent, eosinophiles 1 per cent.

There were 3 per cent transitional cells.

The red cells were normal in appearance and no malarial organisms were seen.

Urine: The urine was slightly turbid, amber in color and showed a specific gravity of 1.014.

There was no sugar or albumin found and the microscopic examination was negative for casts.

Agglutination tests against B. typhosus, paratyphosis "A" and "B" and B. abortus were all negative. The feces examination was negative for the typhosus group. Blood cultures were negative. A tuberculin skin test was negative with 0.1 c.c. of 1-10,000 O.T.

Undulant fever appeared to be the most likely diagnosis in spite of the negative report obtained from the agglutination test and blood culture, so more blood was collected and sent to the laboratories of the Miami Valley Hospital at Dayton, Ohio, where considerable investigation into this condition has been carried on under the direction of Dr. W. M. Simpson. He found the agglutination test positive against B. abortus and suggested as a diagnostic aid a skin test with which he had been working, stating that the agglutination test is not always reliable.

*Read before the November, 1930, meeting of the Muskegon County Medical Society.

One-tenth cubic centimeter of a saline suspension of heat-killed B. abortus organisms was injected intradermally which resulted in a definitely positive reaction two days later.

Because of the regularity which which positive skin tests were obtained by Dr. Simpson I decided to treat this case as one of undulant fever and so began injections of a vaccine made from heat-killed Brucella abortus standardized to two billion c.c. These injections were given every third day in increasing doses up to one cubic centimeter.

After seventeen days the temperature returned to normal, and has remained so ever since. During this time the other symptoms also disappeared, and at a subsequent examination several months after treatment he was found to be perfectly healthy.

TEMPERATURE RECORD DURING TREATMENT

Date	*Vaccine*	8	12	4	8	
Feb. 23	¼ c.c.	99	99.2	99.4	99.4	
Feb. 24		99.4	99.2	99.4	99.4	
Feb. 25		99	99.6	99.4	99.2	
Feb. 26	¼ c.c.	98.4	98.8	99.2	99.6	
Feb. 27		100.6	101	100	100.2	
Feb. 28		100.2	99.6	99.6	99.2	
Mar. 1	½ c.c.	98.8	99.4	99.4	99.6	
Mar. 2		99	99.6	100	100.2	
Mar. 3		99.2	99.8	100.4	100.6	
Mar. 4	½ c.c.	100	103	102.6	101	Chills
Mar. 5		100	104.6	103	102	
Mar. 6		99	98.8	99	99.6	
Mar. 7	1 c.c.	98.8	99	99.8	100	
Mar. 8		99.2	99.8	100.8	100.8	
Mar. 9		100.2	100.4	100.4	101	
Mar. 10	1 c.c.	99.8	99.6	100.4	100.8	
Mar. 11		99	99.2	98.8	98.6	
Mar. 12		98.2	98.2	98	98	
Mar. 13	1 c.c.	98	98	98.4	98.4	
Mar. 14		98.4	98.6	99	98.8	
Mar. 15		98.2	98.4	98.4	98.8	
Mar. 16	1 c.c.	98.2	98.4	98.4	98.6	
Mar. 17		98.2	98.6	98.6	98.2	
Mar. 18		98.2	98.6	98.6	98.2	
Mar. 19	1 c.c.	98.2	98.4	98.8	98.8	

DISCUSSION

It is important that we acquaint ourselves with the symptoms and diagnostic points of undulant fever because of the increase in the amount of this infection found during the past few years. There has been a tendency of late for many mothers to use raw milk, thinking it to be more healthy. The source of raw milk is often questionable and if this practice continues we are going to see more and more undulant fever.

The source of infection in this case is undetermined. The family was using pasteurized milk from the largest dairy in the community, and they maintained no farm or domestic animals. However, the child habitually played at nearby farms with neighbor children and could easily have contracted the infection from raw milk served to it during these visits. Another source to be considered in this case is the domestic animal; although not the usual source, it is capable of carrying the organism. It is because of the more or less limited trial which has been given the vaccine therapy suggested by Dr. W. M. Simpson that I am reporting this case. The fact that the temperature returned to normal after seventeen days of vaccine treatment, after having been so high for three months, suggests that this form of treatment may have merits.

PUERPERAL INVERSION OF THE UTERUS*

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The infrequency of inversion of the uterus attaches to the condition sufficient interest to justify recording of all cases observed. In fact it is often referred to as a medical curiosity.

The condition is considered rare. Authors vary as to its incidence. Some report an incidence of 1:10,000—others of 1:400,000. According to Beckman, not a single case occurred in 250,000 labors at St. Petersburg Lying-in Hospital, while Madden noticed it only once in 190,000 deliveries in Dublin (Williams). Hasselhorst saw one case in 28,000 labors over a period of twenty years. The consensus of opinion places the incidence at 1:200,000.

Before it is possible for an inversion of the uterus to occur, there must be a relaxation of a portion of the uterine wall which is surrounded by normal muscular activity. This point of relaxation in childbirth is the site of the placenta, and in the non-gravid uterus it is the center of a new growth. These growths are usually found to be either pedunculated myoma or sarcoma. Any form of traction from below or pressure from above will therefore start an inversion by depressing the relaxed portion of the uterus, which is at once acted upon by the surrounding muscles, whose contractions gradually increase the displacement until it becomes more or less complete. Sometimes the entire

*Read at the December, 1930, meeting of the Shiawassee County Medical Society, at Owosso, Michigan.

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uterine wall may be relaxed and an inversion may occur from continued traction or pressure. The puerperal causes are: a short cord; early traction upon the cord; fundal attachment of the placenta; delivery in the erect posture; a rapid labor; injudicious pressure or palpation over the fundus of the uterus; violent intra-abdominal pressure; and finally, spontaneous inversion without known cause though probably due to paralysis of the cervix.

In acute inversion, in the absence of profound shock, hemorrhage, or sepsis, an attempt should be made to reduce the inversion immediately after its occurrence as delay increases the chances of failure and death. If there is extreme shock, the safest procedure is to first treat the shock. Blood transfusion produces miraculous results in these cases, both before and after reduction. If obvious signs of sepsis are present the inverted uterus should be left untouched (save for removal of placental remains) and vaginal douches given daily until all discharge ceases and the uterus becomes firm. Sepsis inside a soft involuting uterus, lacerated and contused by reduction, ends in septicemia, parametritis, phlegmasia dolens with death or a protracted convalescence. It is well known that involution will take place whilst the uterus is inside out (Phillips) and in a number of cases spontaneous reduction has occurred during expectant treatment.

However in the absence of shock or the above mentioned condition, immediate reduction should be attempted. The technic of the procedure is as follows: The patient is anesthetized—placed in dorsal position and the reduction of the displaced fundus made by the hands, as instrumental taxis is not indicated in acute cases. If the placenta is attached it should be removed immediately. The inverted body of the uterus should be replaced in the vagina. Then using the fingers of the right hand as a cone or in some cases the doubled hand or fist, pressure should be applied in the direct center of the fundus in the axis of the vaginal canal, while the fingers of the left hand make counter pressure from above through the abdominal wall upon the cervical rim of the collar. As a result of these manipulations the fundus slowly passes back through the cervical rim and the uterus is eventually replaced.

After reduction, it is optional, depending on conditions during delivery, whether or not to use hot intra-uterine douches. The case is now treated as one of simple uterine inertia, i.e., stimulating of relaxed uterine muscles by hot intra-uterine douches-pituitrin-ergot.

In some cases it will be found impossible to reduce the uterus by the above described method and a more gradual reduction must be employed. The best procedure under these circumstances is to push up only a small portion of the inverted uterus at a time with the finger near the cervical rim, continuing the manipulation until the entire mass is replaced (Ashton).

In chronic cases it usually requires operation to effect reduction. Various types of operation are used, i.e., Spinelli; Kustner; Hysterectomy. These will not be described here.

Due to the generosity of one of my colleagues, to whom the case properly belongs, I am reporting a case of acute puerperal inversion of the uterus.

PUERPERAL INVERSION

Patient, Mrs. M. C., age 20, married six years, Para III. Previous history negative. No serious illnesses. Family history negative. No miscarriages or abortions. First child normal birth. The second was taken with instruments because of an abnormal position. The present pregnancy had been entirely normal and without symptoms. Urine and blood pressure normal throughout course. Pelvic measurements normal. General physical examination essentially negative.

Patient entered hospital at 10 p. m., August 29, 1929. She was not having labor pains but had entered because the membranes had ruptured and a breech presentation diagnosed. She was surgically prepared, given an enema, and put to bed. At 7:00 a. m. on August 30, her pains had become severe and practically continuous. An examination showed position to be an incomplete breech—single footling. Pains continued and by 10:00 a. m. the cervix was fully dilated, the buttocks well down on the perineum, and the left foot and leg protruding from the vagina. At this time she was anesthetized with chloroform and delivered of a normal, living, 9½ pound girl by means of the usual technic. There were no lacerations.

The patient was allowed to react and in about twenty minutes began to have sharp pains in the lower abdomen. Moderate Credé without cord traction was used in an effort to conclude the third stage of labor. The patient then experienced a very severe pain and the placenta appeared at the vaginal opening attached to a large tumor-like mass. Examination revealed the true nature of the mass—a completely inverted uterus with an adherent placenta attached squarely in the fundus.

After the acute pain, however, the patient was entirely comfortable. She stated that she "felt fine." Pulse was 115 and of fair quality. She had been surgically prepared for delivery and the chances of sepsis were slight.

Accordingly, we elected to attempt reduction at once. She was again anesthetized, redraped with sterile goods, and the adherent placenta freed from the uterine wall by finger dissection and with con-

siderable difficulty. Only moderate bleeding followed. Hot saline packs were wrapped around the uterus, after which bleeding was very slight. The inverted body of the uterus was then copiously irrigated with hot saline solution and a final inspection made for adherent bits of placenta and membrane.

Finding the surface clean, the uterus was replaced in the vagina. The right fist was placed against the fundus and the fingers of the left hand pressed firmly against the cervical rim through the anterior abdominal wall. Steady pressure was then used on the fundus in the axis of the vagina. In five minutes beginning invagination was felt at the fundus. Pressure was continued until a depression the size of the fist was formed and the reduction was completed by rolling the inverted edge of the uterus back between the thumb and forefinger of the right hand. The left hand gave constant aid from above. All manipulations were done slowly, carefully, and with steady pressure to avoid tearing the soft uterus. One ampule each of pituitrin and ergot were given and within ten minutes the uterus was firm and in normal position.

Following the operation the patient showed but moderate shock, which responded immediately to the mildest measures. On the third day post-operative she ran a reactionary temperature of 102 degrees with a pulse of 120. There was a profuse vaginal discharge and daily hot saline douches were given. Beginning the fourth day her temperature began to recede, the discharge less in quantity, and the pulse slower in rate and of better volume. By the sixth day post-operative, the pulse and temperature were normal and continued so from then on. She was discharged from the hospital on September 9, 1929, eleven days following delivery. She remained in bed for one week following her return home. The baby was put to the breast the fourth day post-operative and was nursed from that time until the 11th month.

Pelvic examination at a later date showed normal involution of the uterus and otherwise negative pelvis. Patient states that she has been in good health since. Menstruation began two months following delivery and has since been normal in time of occurrence, length and amount of flow.

CONCLUSIONS

1. Puerperal inversion of the uterus is a very rare condition.
2. The predisposing causes are inertia of the uterus—pressure from above—and traction on the cord from below.
3. Shock is the leading symptom and when this occurs after the third stage of labor, uterine inversion should be borne in mind.
4. In the presence of marked shock or obvious sepsis, expectant treatment should be followed.
5. In the absence of shock or sepsis, immediate reduction should be attempted.
6. Manipulation should be manual and all manipulations performed with utmost care to lessen the danger of tearing the uterine wall, thus increasing the danger from hemorrhage and sepsis.

BACTERIOPHAGE TREATMENT OF STAPHYLOCOCCUS INFECTIONS

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Bacteriophage active against staphylococci has been given a very extensive clinical trial during the last four years, and while the results have been for the most part satisfying, there exists as yet no acceptable clinical evidence upon which to base a claim for recognition of this product as a therapeutic agent. Having a limited amount of clinical material available we have attempted during the past year to accumulate data bearing on the effect of bacteriophage treatment as compared with (1) extract broth, and (2) bacterial protein prepared by the action of bacteriophage, and while it is evident that the number of patients is limited, we feel that inasmuch as no similar study has as yet been reported the results are of some interest and value.

The material used in treatment was prepared at the Michigan Department of Health and consisted of: 1. Staphylococcus bacteriophage, a filtrate of a broth culture of staphylococcus lysed by bacteriophage, and containing the lytic agent in high concentration. 2. The same material as No. 1 except that the bacteriophage was removed by absorption with blood charcoal. 3. Beef extract broth containing 3 g. of beef extract and 10 g. of peptone per liter.

These products were put up in suitable vials and labeled only by numeral and letter in such a manner that during the treatments and the recording of results the nature of the product was known only in the laboratory where prepared. In other words the clinical interpretations were not influenced by a knowledge of the nature of the material used.

TABLE I

No. of patients treated with:	++++	+++	++	+	—	Total plus	No. of Patients	Index
Broth	3	1			7	15	11	1.36
Protein	4	1	3		2	25	10	2.5
Phage	15	7	3	1	7	88	33	2.66

The patients were students at the University of Michigan, reporting to the University Health Service for treatment of furuncles or acne. Two subcutaneous injections of 2 c.c. were given at 24 hour intervals. In some instances only a single inoculation was administered, in others three, but such variations were taken into account in the interpretation of the results. Fifty-four patients were thus treated and in so far as was possible the results were recorded within 24 to 48 hours and again after six months. Thus it was possible to observe both the immediate effect, *i.e.,* the condition of lesions existing at the time of treatment, and the immunity produced; *i.e.,* the recurrence of the condition.

The results of these treatments were analyzed by several individuals independently in the following manner. The reports were distributed in groups according to the degree of improvement:

++++ Excellent result—rapid resolution of existing lesions and no recurrences during six weeks or more.

+++ Good result—lesions subside rapidly but less rapidly than ++++. No recurrence.

++ Fair result—lesions clear up within 3 to 5 days but recurrences within four to six weeks.

\+ Poor result—no local effect, but freedom from new lesions for brief period.

— No evidence of effect of treatment.

Following this each group was divided into three classes according to the treatment, and the number of ++++, +++, etc., for each agent determined. The total number of pluses was determined and divided by the number of patients which gave an index usable for comparison. Table I illustrates the method of analysis.

The reports were thus classified and analyzed by several individuals working independently and without a knowledge of the type of treatment used. The results are given in Table II.

The comparative value of the different treatments is shown in Chart I.

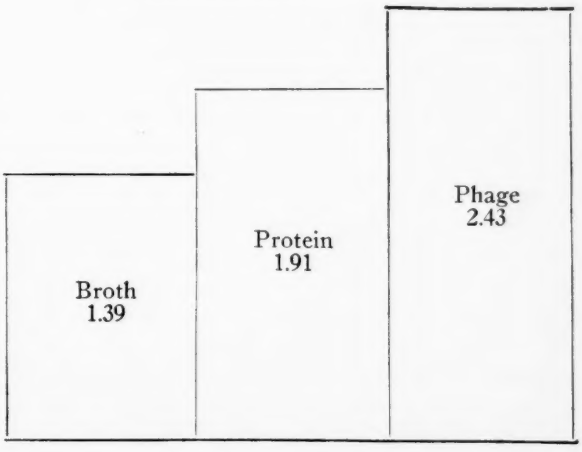
It is obvious that these results are based upon the clinical observations, which could easily be subjective. It should be emphasized, however, that they were made without a knowledge of the nature of the various preparations used and that every effort was made to give a purely objective report of the facts observed. It is also obvious that several other methods of treating controls might have been adopted as well as other methods of analysis of the reports. We feel, however, that, while our series is too small to justify conclusions, the results are certainly suggestive and deserving of consideration.

TABLE II

	Indices					
	1.	2.	3.	4.	5.	Av.
Broth	1.36	1.27	1.67	1.73	.9	1.39
Protein	2.5	2.25	2.1	2.3	.4	1.91
Phage	2.66	2.61	2.0	2.78	2.10	2.43
Total plus	6.52	6.13	5.77	6.84	3.40	5.73

CHART I

COMPARISON OF RESULTS OF TREATMENT WITH BACTERIOPHAGE, BROTH, AND BACTERIAL PROTEIN



The observations on the effect of the lysed staphylococcus proteins in the absence of phage are particularly significant in that they support the contention that it is the proteins which give to bacteriophage preparations their effectiveness. Here again the evidence is meager but none the less suggestive. Further studies along these lines await the clinical material necessary for their development.

UROGENITAL TUBERCULOSIS*

A MODIFIED VERNES TEST AS AN AID IN DIAGNOSIS

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In the past repeated attempts have been made to arrive at a satisfactory blood reaction for tuberculosis. Complement fixation tests have been disappointing, blood nitrogen studies are valuable but not diagnostic. Professor Arthur Vernes, who is in charge of the Prophylactic Institute in Paris, brought out in 1923 a resorcinol test which seems to have much value. For several years the Prophylactic Institute has been working on diagnostic tests in syphilis, tuberculosis, and cancer. The Vernes Test for syphilis is a serum flocculation test with perethynol and compares favorably with the Kahn, Meinecke, Sachs-Georgi and other tests for syphilis. Extending this method to tuberculosis he has devised a flocculation test for this disease with the use of 1.25 resorcin solution as reagent. The test is based upon the phenomenon of the periodic curve produced when blood serum is combined with certain reagents. The chief apparatus of the test as carried out by Prof. Vernes is the photometer of Vernes, Bricq and Yvon, which consists of a metal box fitted with lenses, prisms, surcharges and a wedge of fumed glass. It is designed to measure the loss of light from a beam passing through the liquid under observation, enabling the operator to read with great accuracy the degrees of flocculation, as a direct reading of milligrams on a calibrated scale attached to the movable wedge of fumed glass gives the precise measurement of the amount of absorption of light for 1 cubic centimeter of liquids.

Procedure of test is as follows:

10 c.c. blood is obtained by venopuncture in usual manner (best at least 3 hours after meal).

Tube is stoppered and refrigerated over night (if blood is placed in an inclined position at room temperature for ½ hour before refrigeration, clot contraction is more satisfactory).

After refrigeration, serum is decanted and centrifuged to free of cells.

Two tubes are set up for each serum, one to act as check against the other, and 0.6 c.c. of serum is placed in each of these tubes.

(Vernes measures with a mechanical syringe or rheometer.)

The reagent, 1.25 per cent aqueous solution of resorcin ($C_6H_4(OH)_2$) is placed in a small glass beaker, and the control reading is made—all liquids should be of same temperature, 18 to 25°C.

Place 0.6 c.c. of reagent into tube containing serum—invert several times and transfer to photometer. Read at once and then return tube to rack and close with rubber stopper.

Incubate for 4 hours in air or water, both at a constant temperature of 20°C.

Reread in photometer.

Subtract first reading from second reading.

The difference is the degree of flocculation caused by the reaction between the reagent and the serum and is recorded in milligrams per one cubic centimeter of liquid.

Having the opportunity of taking bloods for Kahn tests on a large number of patients, I thought it a good opportunity to run this similar test for tuberculosis. Mr. Childs, the serologist of the Department of Health Laboratory, suggested performing the readings similar to Kahn test readings, namely negative, plus minus, one plus, two plus, three plus and four plus. We were favorably impressed by the results obtained and decided to further check our cases to see whether or not this modified test was of value. In reviewing the literature I found that the only work done in this country was either by or under the direction of Miss Adelaide B. Baylis of New York and in a personal communication from her received a reprint of a similar modified test that she had worked out and reported in the Proceedings of the Society for Experimental Biology and Medicine, 1928, XXV, 482. Vernes himself states that a normal subject gives a reading varying from 0 to 15 on the photometric scale, a tuberculous one a reading over 30. Hence there is an intermedi-

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ary zone where normal sera produce much flocculation and a tuberculous serum may only produce slight flocculation. Vernes includes in this area beginning chancre cases, certain cases of advanced carcinoma and some severe septicemias. Vernes states that where the reaction is negative, that is under 15, the case is not recorded, but where the reactions verify tuberculosis in subjects in which the disease is unrecognized, serology takes precedence of the clinical evidence. It thus would appear that while the use of the photometer is essential for accurate experimental data the readings extend over such a large series of numbers that they must be studied in groups or degrees of positivity. Miss Baylis has checked a large number of sera with the photometric and the modified method of readings and the correlation is fairly consistent. In a recent article she states as follows: "It has been our experience that non-tuberculous sera give no precipitate, and minus and plus minus correspond to Vernes readings below 20. Quiescent tuberculosis during periods of slight activity gives plus and 2 plus readings corresponding to Vernes figures from 20-30. Active tuberculosis gives readings of 3 plus and 4 plus, corresponding to Vernes figures above 30." The chief point in either method seems to be to read at once as soon as reagent is mixed and to subtract this from a reading made at the end of 4 hours after a constant temperature of 20°C. The chief value of the photometer is that it eliminates the factor of personal error and that it gives much finer gradations. These are of extreme necessity in prognosis and are essential in some of the applications of the test as made at the Prophylactic Institute; such as (a) to discover concealed forms of tuberculosis, (b) to determine the condition of an infection under or after sanatorium care, (c) to follow the evolution and prognosis of collapse therapy, and so on. However, for purely diagnostic purposes the higher readings or in the modified method those over 2 plus are of definite value. The test is so simply run that many possible chances for error, as in the use of hemolytic systems in complement-fixation tests, are eliminated. The reagent itself is a pure chemical substance of known standardized quality and hence less likely to permit of variation as that of an extract from a culture of tubercle bacilli, as is necessary in complement-fixation work. Of course the test is more reliable in the hands of experts, as at the Prophylactic Institute, where many thousands have been run and where it is in regular daily use, but as modified by Baylis and ourselves is simple enough to be of value to anyone who uses it in good faith.

In our studies we have not attempted to amass large numbers of cases for statistical purposes. We have rather been interested in the results obtained in individual cases that were under our control. I have personally been interested in the results obtained in urogenital cases with or without active clinical symptoms. In the French Journal D'Urologie for June, 1928, Legueu and Vrignaud reported a series of 44 patients divided into 3 groups. First group: Patients in whom the diagnosis of tuberculosis was confirmed by microscopical examination either by discovery of Koch's bacillus in urine or by pathological examination. This group included eighteen cases of renal tuberculosis and eight cases of tuberculous epididymitis. The reaction was positive in seventeen of eighteen renal cases and six of the eight epididymitis cases.

In the second group were eight cases—seven renal tuberculosis and one tuberculous vesiculo-prostatitis. The resorcin reaction was positive in all eight cases.

In the third group there were ten cases, six of colon bacillus pyelonephritis, one case of cyst of the epididymus, one case of simple adenoma of the prostate, one case of chronic urethritis due to gonococcus, and one case of renal calculus. In these ten cases the reaction was negative in nine cases and only suspicious in one case of pyelonephritis. In the total number of cases the reaction coincided with clinical findings in 90 per cent of cases. This corresponds well with a series of cases of pulmonary tuberculosis checked by Uffoltz and Jacquot which gave 91.5 per cent and Prunell 92 per cent of results coinciding with ultimate clinical findings.

I have attempted to find out if the test as modified and simplified by us was of equal value in diagnosis of urogenital tuberculosis. We have classified our cases for comparison into four groups. In the first group we placed those cases of proven tuberculosis, either by the finding of tubercle bacilli in the urine or by pathological tissue diagnosis. Of these there were thirteen cases.

The next group were of cases where we believed no tuberculosis existed, that is,

GROUP I. RESULTS OF VERNES TESTS
CASES OF PROVEN UROGENITAL TUBERCULOSIS

Case No.	Vernes Readings				Tubercle Bacilli Found	Other Data
	1st	4 Hr.	O-Nite	Final		
I	—	3+	4+	4+	Rt. Ureter	TBc. Epididymis removed.
II	±	1+	3+	3+	Both Ureters	
III	±	2+	4+	4+		TBc. Kidney removed.
IV	±	2+	3+	3+		TBc. Epididymis removed.
V	—	3+	4+	4+		TBc. Kidney removed 8 mos. ago.
VI	—	3+	3+	3+	Both Ureters	
VII	—	—	—	—	Bladder Urine	Pyelograms and Function Neg.
VIII	—	1+	2+	2+	Bladder Urine	Pyelograms and Function Neg.
IX	—	±	3+	3+	Bladder Urine	
X	—	—	3+	3+	Bladder Urine	Guinea Pig Neg. Pyel. and Function Neg.
XI	—	—	4+	4+	Bladder Urine	Also advanced TBc. of Lungs.
XII	1+	4+	4+	4+		Tuberculous Epididymis removed.

GROUP II. RESULTS OF VERNES TESTS
CLINICAL TUBERCULOSIS ABSENT

Type of Case	No. of Cases	Results of Tests					
		—	±	+	2+	3+	4+
Acute Gonorrhea	16	13	3	0	0	0	0
Syphilis Primary	3			1		2	
Syphilis Secondary	10	5	1			3	2
Gon. Epididymitis	4	1	2	1			
Non-Specific Ulcer	2	1	1				
Non-Tub. Asthma	1		1				
Latent Syphilis	15	10	3	2			

GROUP III. RESULTS OF VERNES TESTS

Type of Case	No. of Cases	Results of Tests					
		—	±	+	2+	3+	4+
Pregnancy	7	4				1	2
Diabetes	3	2		1			
Advanced Malignancy	3	1			1		1
Acute Infections with High Fever	4			2	1	1	

GROUP IV. VERNES TESTS

Case No.	Name	Vernes	Stained Smears of Urine	Guinea Pigs	Urograms	Culture	Clinical, History and Remarks
1	C. W.	4	Neg.	Neg.	Neg.	Neg.	Slight hematuria, t.b.c. found in urine at another hospital.
2	J. D.	4	Neg.	Neg.	Neg.	Neg.	Perinephritic abscess drained, nephrectomy later—path. report interstitial nephritis suggestive of tuberculosis.
3	E. P.	3	Neg.	Neg.			Prostate irregularly enlarged. P. smear neg. for t.b.c. and g.c.
4	J. A.	1	Neg.	Neg.	Neg.		Bilateral hematuria—ulcerative colitis
5	C. C.	2					Swelling upper pole of epididymis 3 weeks after injury—Gc. 7 yrs. ago—going to Ford Hosp.
6	F. C.	2	Neg.	Neg.	Neg.	Neg.	Quit work account backache and dysuria at Rec. Hosp. 10 days then to H. K. Hosp.—urinary symptoms disappeared—No Pulm. T.B.C.
7	Sad	4	Neg.				Acute retention, prostate irreg. enlarged and hard—vesicles enl. and hard—bladder very intolerant—rt. epidid. enlarged and hard. Sent to Eloise as Ca of prostate.
8	CC2	1					Fistulous tract in scrotum attached to epididymis of 3 mos. duration has had g.c.
9	E. C.	4	Neg.	Neg.			Left kidney drained for perinephritic abscess —had had rt. nephrectomy 18 yrs. previous—still has frequency—nocturia 4x—minimal T.B.C. of lungs.
10	C. D.	1	Neg.	Neg.	Neg.		Nephrectomy 2 yrs. previous—still has frequency ev. ½ to 1 hr.

there were no clinical symptoms of such. This group included thirty-five cases, of which twenty were cases of acute gonorrhea, ten cases of syphilis, five cases of genital ulcers, etc.

The next or third group we took seventeen cases of diseases where we thought various blood changes occurred owing to other conditions. In this group there were three cases of advanced carcinoma, three cases of diabetes, seven of pregnancy, etc.

In the fourth group we placed ten cases of suspected tuberculosis where the positive diagnosis as finding of tubercle bacilli could not at that time be determined. This group included three cases of epididymitis.

It will thus be seen that in the first group where tuberculosis was proven to exist there was but one case that was negative to the Vernes test and bacilli were found in the urine. This case was absolutely symptomfree at the time of this reading and at a previous test taken upon admission gave a two plus, so that the possibility of a healing tuberculous process might be considered or that tubercle bacilluria without lesion is possible. The other cases were all two plus or more.

In the second group of negative tuberculosis cases there were only seven of fifty-one cases that showed anything more than one plus and these were all primary or active secondary syphilis cases. Professor Vernes states that primary and active secondary syphilis may give a false positive, but notice that of the fifteen latent syphilis cases, none gave more than a one plus reaction.

In the third group the results are more variable. However, in all these cases the presenting symptoms were suggestive of other disease and in some of them coexistent tuberculosis was not absolutely ruled out. Inasmuch as the test is not a specific one it will only be natural to find some other conditions that may occasionally give a false positive. The reaction is also now being studied in relation to these false positives and the originators insist that if these tests were repeated a variable result would be obtained, while only in tuberculosis would a repeatedly positive result be obtained. Further study will no doubt reveal the limitations of the test.

In group four is I believe where the test will prove to be of great use. These are cases in which urogenital tuberculosis was suspected, and in several instances, long after the report of the Vernes test, tuberculosis was verified by the usual method. These cases will have to be taken up individually to be of any value.

A careful study of these four groups of cases allows us to draw the following conclusions regarding this modified resorcinol test.

1. It will thus be seen that although this reaction is not entirely specific it seems to have promise of much value. It should be of value in differentiating a tuberculous from a gonococcus or pyogenic epididymitis, a renal tuberculosis from a pyelonephritis of obscure origin, etc.

2. It seems to be an index of the activity of the tuberculous process and therefore should be a valuable guide as to the time for nephrectomy or other operative interference during sanatorium care.

3. The test is so simply run that it should be a part of a health examination for tuberculosis in that a highly positive test without other findings is suggestive enough to recheck the case and a completely negative test will practically eliminate the necessity of considering tuberculosis as a factor.

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INTRAVENOUS SODIUM AMYTAL, WITH REPORT OF A DEATH

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Having been active in the employment of sodium amytal since its inception as a pre-anesthetic hypnotic, either as the operating surgeon or the observant administrator of the drug, the writer wishes to present some observations on its uses.

Believing that the accidents and deaths occurring with new and experimental methods and drugs should be boldly broadcast, in the hope that from our experiences others may profit, and not suppressed in order to maintain the appearance of clean records, is the reason for the following detailed report of a death in this series of sodium amytal cases.

A wide variety of cases are included in this group, such as: Operations on the biliary tract, stomach, bowel, genito-urinary tract, thyroid, nervous system, head and neck, bones, joints, amputations, hemorrhoids, and plastics.

An effort was made in this series of cases to use doses of sodium amytal sufficient to produce surgical anesthesia or hypnosis requiring a minimum of or no supplementary anesthesia. Inasmuch as the lethal dose of the drug for man is unknown and as the dose of 25 mg. per kilo of body weight is estimated to be maximum, it was deemed advisable to remain well on the safe side by using 20 mg. per kilo. Experience with the drug had convinced us that there is no satisfactory means of controlling the anesthetic after once administered intravenously and that no true antidote is known. The supplementary anesthesia used in all cases was nitrous oxide with as high a component of oxygen as possible to maintain the proper relaxation.

Of the eighty-eight cases receiving the intravenous sodium amytal, twenty-one cases required no supplementary anesthesia at all. The average length of operations performed was 72 8/9 minutes. The average length of supplementary anesthesia used in sixty-five cases was 58 8/13 minutes. Thus the average decrease in supplementary anesthesia necessary in sixty-five cases was 24 minutes.

Each case was carefully checked as to the blood pressure changes during the administration of the drug. Using the blood pressure findings before giving the hypnotic as a control and checking the findings after 4 c.c. and 10 c.c. had been given, it was found that the average drop in systolic blood pressure was 28⅓ mm. The extremes in blood pressure findings were taken in compiling this average.

The average length of time before the patient reacted in 83 cases, determined by the ability of the patient to drink, was found to be nine hours.

The postoperative complications in the group were as follows: Ten patients were irrational, disoriented, restless, and even to the point of delirium within an hour after return from the operating room. The majority of these relapsed into a state of profound sleep on the administration of ¼ grain morphine sulphate. There were one massive collapse of the lung, two hypostatic pneumonias and two bronchopneumonias.

DETAILS OF FATAL CASE

The following is the detailed report of the death occurring from the use of intravenous sodium amytal.

The patient was a female, age 36 years, negress, married and a housewife. Patient first examined in June, 1930, complaining of abdominal pain. The onset of the present illness began two weeks previously with nausea, vomiting, and pain in both lower abdominal quadrants. There had been low back pain and a moderate vaginal discharge. Menses had been regular with an intermittent metrorrhagia during the last two weeks with a profuse flow lasting three days just prior to examination. A gradual suprapubic enlargement of the lower abdomen had been noted for several months. There had been no pregnancies, stillbirths, or miscarriages.

Examination: Patient presented a well developed and nourished adult negress obviously in pain but not acutely ill. The head and neck were essentially negative. Lungs were clear throughout with no areas of dullness, flatness, and there were no râles. Heart not enlarged to percussion, sounds regular, good quality, and no murmurs. B. P. 130/80. The abdomen was slightly distended, panniculus about six cm. There was a firm, nodular tumor mass arising from the pelvis and extending half way to the umbilicus. Vaginal examination revealed a small cervix pointing in the long axis of the canal and in contiguity with the nodular suprapubic mass on bimanual examination. Adenexa not enlarged but tender. Weight, 156½ pounds.

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Laboratory examination revealed a negative Kahn and urine. Blood studies: Hgb. 80 per cent. R. B. C. 4,200,000. W. B. C. 2,400.

Diagnosis: Uterine Fibroids. Chronic Pelvic Inflammation.

Preoperative preparation: Morphine Sulphate gr. ¼. Atropine gr. 1/150. Anesthetic: Sodium Amytal (20 mg. per kilo). Dosage for required weight 14.2 c.c. of 10 per cent solution.

The drug was given at the rate of 1 c.c. per minute. After injection of 6 c.c. patient's respirations became slow, somewhat shallow, as though in sleep. Pulse regular, 98 per minute, good quality. B. P. 72/30. After administration of 13 c.c. respirations suddenly stopped. Pulse remained of fair quality, 100 per minute. Artificial respiration was immediately given together with caffeine sodium benzoate, 7½ gr. in 3 doses, as well as ephedrine sulphate in 25 mg. doses. Not a single respiratory movement could be stimulated at the end of one hour's artificial respiration, though the heart beat continued throughout that time.

This, apparently, was a sodium amytal death in a young, physically sound adult, death occurring after administration of 1.3 gms. of the drug or on the basis of 19.5 mg. per kilo; a dosage presumably well within the lethal limits.

Although autopsy permission could not be obtained, the evidence seems conclusive of a respiratory failure or paralysis due to sodium amytal. Thus the mortality from the drug in 20 mg. doses per kilo of body weight in this series of 88 cases is 1.149%.

CONCLUSIONS

1. Complete surgical anesthesia with large doses of sodium amytal intravenously, without supplementary anesthesia, cannot be obtained with any uniformity.
2. The production of complete surgical anesthesia with sodium amytal in large doses is dangerous.
3. Small doses of sodium amytal supplemented with nitrous oxide and as high a component of oxygen as possible, which gives a more certain control over the drug, is the safest method for its use.

MICHIGAN'S DEPARTMENT OF HEALTH

C. C. SLEMONS, M.D., Commissioner
LANSING, MICHIGAN

ACTIVITIES OF 1930

The organization of county health departments has been one of the outstanding activities of the Michigan Department of Health for the year 1930. Three counties have been added to the list of those having full-time county health departments under boards of supervisors. There are now eight health departments operating under direct county control.

Two new consolidated district health units have been organized during the year by the Children's Fund of Michigan. There are now four such district departments, comprising a total of sixteen counties. Counting Menominee County, which, of course, has a child health demonstration rather than a regular county health department, this brings the total of Michigan counties having organized health work on county basis up to twenty-five. The counties under the district or county plan are Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Crawford, Emmett, Genesee, Iosco, Isabella, Kalkaska, Kent, Menominee, Midland, Missaukee, Montmorency, Oakland, Ogemaw, Oscoda, Otsego, Ottawa, Presque Isle, Roscommon, Saginaw and Wexford.

The minimum budget recommended for a county health department is $12,000 and the minimum personnel recommended consists of a qualified full-time health officer, two public health nurses and a clerk. The agencies giving financial assistance to the counties are the Rockefeller Foundation, the U. S. Public Health Service, Children's Fund of Michigan, and the state.

Inextricably bound up with the problem of furnishing an adequate health service is that of developing trained personnel. A training station for health officers and public health nurses is maintained by the State Department of Health in coöperation with the Rockefeller Foundation at Lansing. The course lasts for three months. During the first part of the course, the trainees receive instruction from the heads of the divisions of the State Department of Health; during the second part they are given practical experience in the field. The course is limited to five physicians and five nurses and the entrants receive a stipend to aid them in bearing expenses while in attendance.

Work of the Bureau of Rural Hygiene consists of the establishment and supervisory control of the county health departments, and plans of the bureau for 1931 include the establishment of new departments and assistance to those already organized. Even with twenty-five counties under organ-

ized health supervision, there are over two million people in Michigan without adequate health service.

RECORDS AND STATISTICS

Possibly the most important accomplishment during 1930 in the Bureau of Records and Statistics was to put into use the Fourth Decennial Revision of the International List of the Causes of Death. The manual for the use of this list has not yet been prepared, but because the director of the bureau was one of the American representatives at the conference that revised the list, he was able to prepare a manual for department use. The new list has been thoroughly tried out in 1930 and it gives every indication of being very satisfactory for use during the next decade.

The ruling of the Attorney General that the Michigan Department of Health was authorized to issue only certified copies of records has had a very beneficial effect in referring inquiries for ages to the local records.

Two years of marriages have been practically completely indexed, and it is expected that by the first of January this work will be completed. At the time vital statistics were taken over from the Department of State, the indexing of marriages was seven years back.

Changes have been made in the system of reporting from the organized health units and the bureau has put into use a method of notification of deaths that it is believed will insure the units being kept informed of the lethal rates in their district.

A system of notification has been in operation to advise the Department of Public Safety relative to deaths due to traffic accidents.

The director, together with his assistants, has carried a course of vital statistics for each group of the training school. A number of papers have been prepared during the year, one of which was presented at the Mississippi Valley Conference on Tuberculosis at Rockford, Illinois, in October. The bureau actively participated in the organization of the Upper Peninsula Conference.

The 1930 census has been received and preparation for the active use of the new figures during 1931 is going forward. The rearrangement of the rural and urban areas of the state on the basis of the 1930 census will be put into effect. This means that we have to add 24 cities and villages to the urban area and have dropped two cities from the urban area on account of loss of population.

One important piece of work which it is proposed to attempt in 1931 is to secure better statements of the cause of death on the death certificates. This will involve an enormous amount of correspondence, but it is believed that the results will be worth while in the production of more satisfactory statistical material dealing with disease.

LABORATORIES

The important development in the Bureau of Laboratories during 1930 has been the addition of smallpox vaccine and tetanus antitoxin to the list of biologic products distributed free of charge to physicians. The smallpox laboratory was completed in March; virus was produced and ready for distribution in October. The biologics now furnished without charge are diphtheria antitoxin, toxin-antitoxin, Schick test material, scarlet fever streptococcus toxin for Dick test and active immunization, typhoid vaccine, silver nitrate ampules, and bacteriophage.

Preparations are now being made to collect and dispense convalescent serum for poliomyelitis. Bacteriophage has been developed in the laboratory and 37,339 centimeters were distributed during 1930. Reagents used in laboratory diagnosis have been made, standardized, and sold outside of the state.

During the year, students from Michigan State College, the Rockefeller Foundation, the University of Michigan and municipal laboratories together with the physicians and nurses in training for county health department work have participated in the training activities of the Bureau of Laboratories.

The work of the diagnostic laboratories has increased in all three divisions. The greatest increase has been in the Lansing laboratory, where records show a gain of 14,995 examinations. This represents an increase in service rather than an increase to meet laboratory diagnosis in communicable diseases. For instance, 6,671 samples of water were examined for the Bureau of Engineering in their control of water supplies of the highways and resorts. Houghton branch laboratory showed an increase of about 5,000 examinations. This represents an increase of general laboratory service. The increase in service in the Grand Rapids Division is represented by about

LIBRARY
Ramsey County Medical Society
ST. PAUL, MINN.

2,000 examinations for the control of milk supplies.

The demand for laboratory service exceeds the resources of the department, in spite of a marked development of laboratory service in municipalities. Each year tularemia in rabbits increases; this year three cases have been traced to native wild rabbits. The laboratory work on tularemia cannot be done in congested quarters without the danger of infecting laboratory workers and laboratory animals. Undulant fever is another disease of increasing significance to the laboratory.

ENGINEERING

Definite advance has been made in sewage disposal facilities in the state during 1930. Three municipalities and three state institutions built sewage disposal plants, which means that the sewage of an additional 175,000 population was treated for the first time this past year. Plants will probably be completed next year in five different localities to serve about 20,000 people. Designs and specifications were prepared and plants were built for sewers and sewage disposal at six state and one county institution, at a total cost of about $160,000.

Three additional municipalities began using filtered water in 1930 to serve a population of about 7,000. Filter plants are now under construction at Grosse Pointe Farms and the Springwell's plant at Detroit.

During 1930 a total of fifteen new artificial swimming pools have been built in the state, making 162 in all. The majority of these pools continue to be located indoors, only 21 of them being built outdoors. This is due primarily to weather conditions. Some idea of the number of people using these pools may be gained by the fact that over nine million swims were recorded during the year, equivalent to two for every inhabitant of the state.

Effort has been made to have the thirty-five municipal water supplies, which are not recognized as safe for drinking and culinary use, so improved or treated that the existing danger to public health will be removed.

The plumbing law was placed in operation in 1930. This has meant the licensing of 6,000 master and journeymen plumbers and the adoption of a state plumbing code. A chief plumbing inspector and six assistant inspectors now serve on the staff of the bureau of engineering.

During the summer, 1,900 samples were collected from roadside water supplies. Of this number, laboratory analysis showed 1,612, or 85 per cent, to be safe and 288 unsafe. Approximately 10,000 miles were traveled by the four men doing roadside water inspection.

A total of 1,900 summer resorts was inspected, and approximately 2,000 water samples were collected from public supplies at these resorts. This activity touched every section of the state and was carried on by six field men.

CHILD HYGIENE AND PUBLIC HEALTH NURSING

Child care classes have continued to be one of the most popular of the services offered by the Bureau of Child Hygiene and Public Health Nursing. These classes are held in rural schools by staff nurses of the bureau, and are attended by girls from 10 to 16 years of age. The girls are taught how to care for infants and young children; how to bathe and dress them; how to prepare bottle feedings; how to give sunbaths; the necessary foods for growing children, and how to prevent disease. Briefly, the fundamentals of child care are taught these rural girls, who marry early and have practically no other training in child care. During the year, there was an attendance of over 27,000 at these classes.

Instruction in prenatal, infant and child care has been given to rural women by a woman physician and graduate nurse on the staff of the bureau. Foods for mother and child, methods of preventing disease, care of the teeth, and child management are among the topics discussed in the women's classes. Time is allowed for general discussion by those attending the classes, and many problems are talked over by the groups. During the year, 2,670 women attended the classes in 14 counties. Many requests are on file for return classes next year.

An educational nursing service to prospective mothers and mothers of young children was given in five counties. The nurses doing this type of work are under the supervision of the local doctors, who refer cases to them. In turn, the nurses report to the doctors on the cases on which they call. Home calls on mothers are made by the nurses, and the mothers discuss their problems with the nurse, who also helps the mother carry out the orders of the doctor.

The nurses act as links between the doctors and their patients. They are an invaluable help to mothers of young infants.

Diphtheria prevention campaigns were conducted in seven counties with the approval of the local doctors, the actual immunization being done by local doctors. In some instances, the staff nurses did all the organization of the campaign and also assisted the local doctors at the time the treatments were given. In other places, staff nurses assisted local nurses. Up to December 1, 1930, a total of 15,174 children was immunized against diphtheria and reports are still incomplete for the month of December.

As in former years, parents of all children born in Michigan have received certificates of registration of birth. Approximately 100,000 certificates were sent during 1930.

The Bureau of Child Hygiene and Public Health Nursing has coöperated in the Summer Round-up of the children, a project of the Congress of Parents nad Teachers, which aims to send to the entering grade in school a group of children as free as possible from physical defects. The observance of May 1 as Child Health Day was also encouraged by the State Health Department through the appointment of state and county May Day chairmen. The department suggested to these chairmen methods of observing Child Health Day, and furnished suitable literature in quantities. Immunization campaigns, examinations of preschool and school children, health talks and health plays in schools, as well as Maypoles, pageants and parades, made May Day a day of definite value to children.

By law the State Health Department has supervision of county nurses financed by county funds. This supervision is accomplished by the Assistant Director of the Bureau, who has made personal calls on county nurses and other public health nurses and assisted them in working out their problems.

To summarize, through child care classes in schools, women's classes for rural women, prenatal and infant welfare nursing, immunization campaigns, supervision of public health nurses and coöperation in state and local projects in the interest of children, the State Health Department has contributed to the welfare of children. The year ending June 30, 1930, had the lowest infant mortality rate in the history of Michigan.

FAMOUS MEN IN MEDICAL HISTORY

WALTER REED

FRANK MAXWELL, M.D.

Although Walter Reed spent more than twenty-five years in the practice of medicine, only the last ten were spent in purely scientific work. Soon after his graduation from medical school, he joined the army as an army surgeon. He was immediately sent to Fort Lowell in Arizona and he spent the next 18 years at 15 different posts in the far West.

His opportunity for scientific work began in 1890, when, after being sent to Baltimore as an examiner of recruits, he was allowed to pursue work at Johns Hopkins Hospital in pathology and bacteriology. Here he was associated with such men as Welch, Nuttall, Flexner and Halstead.

The decade preceding the time when Dr. Reed began the work of his choice had been a fruitful one concerning the etiology of infectious diseases. Upon the basis of the discoveries of Pasteur and Koch, especially as the result of the new methods introduced by Koch for the cultivation and study of bacteria, there had followed in rapid succession within this period the discoveries of the organisms causing tuberculosis, cholera, leprosy, glanders, erysipelas, surgical infections, tetanus, pneumonia, typhoid fever, malaria, amebic dysentery, cerebrospinal meningitis, diphtheria and a large number of animal diseases.

His first work of note was on the microscopical and experimental study of the so-called lymphoid nodules, which are found in the liver of cases of typhoid fever. Reed succeeded in producing these nodules ex-

perimentally and showed that they originated as small foci of dead liver cells. His paper on this subject was published in the "Reports of the Johns Hopkins Hospital." His next paper was on the "Contagiousness of Erysipelas," and from this time onward he was a constant contributor to medical journals.

When the Spanish-American War broke out in 1898, Reed was particularly anxious to hold some responsible position in charge of sick soldiers. In spite of the fact that he was singularly fitted to do this work, men with political influence were chosen over him. The result of such practice soon became obvious for the medical records of the camps were of no credit to the Army Medical Department.

Reed, however, was destined to take his part. Typhoid fever broke out among the volunteer troops and Dr. Reed was made chairman of a committee to study its causation and modes of propagation. The other members were Dr. V. C. Vaughan of Ann Arbor and Dr. E. O. Shakespeare of Philadelphia. The investigation, which covered a period of more than a year, was remarkable for the patience and skill with which a vast number of details were collected and studied, and it marked a great advance in our knowledge of the disease. The labor required in publishing this work was supplied by Dr. Vaughan, who was the sole surviving member of the board. The book is a monumental work, which will always be of value as a basis of study of the epidemiology of typhoid fever. The most original and interesting point in the investigation is the proof that the infection of typhoid fever was spread in camps by the common fly, and by contact with patients and infected articles, such as clothing, tentage, and utensils of all kinds, as well as by contaminated drinking water.

The most important work in Reed's life, that concerning yellow fever, began a year after the work by the typhoid commission was finished. Before we follow him in this, let us review the history of yellow fever in the past that we may have a better conception of the knowledge regarding it at the time Reed and his commission began their work.

Osler described yellow fever in 1892 as "an acute febrile disease of tropical or subtropical climate characterized by jaundice and hemorrhages, and due to the action of a specific virus, the nature of which is not yet known." The course of the disease, according to the same authority, is distinguished by a sudden onset without previous symptoms. There is frequently an initial chill, associated with headache and pain in the back and limbs, nausea and vomiting, constipation and diminished urinary secretion. The first or febrile stage lasts from a few hours to a few days, and may or may not be accompanied by the jaundice which gives the disease its name. It is followed by a remission, some times known as the stage of calm, during which the temperature falls, and the severity of the symptoms subsides. In favorable cases, the disease now decreases and convalescence sets in. In other instances the third stage, known as the febrile reaction, begins. The temperature again rises, all the symptoms become aggravated, the jaundice develops rapidly and in many cases the symptom called "black vomit" takes place. The latter is not necessarily a fatal symptom, but it occurs only in the severer forms of the disease. Bleeding sometimes occurs from the gums and kidneys and hemorrhage into the skin is not an uncommon symptom. The mortality is very high and has ranged in different localities from 15-85 per cent. Convalescence is slow or rapid, according to the severity of the disease, and in most cases one attack insures lifetime immunity.

In the treatment of yellow fever, almost every known measure has been tried and all with indifferent success.

At different periods in history both the Old and New Worlds have been scourged by epidemics of yellow fever, which have never been arrested by any of the means employed for the purpose. On every occasion, the disease has run its course unhindered, the only fact clearly determined being that its abatement was preceded by cooler weather.

The first authentic report of the disease occurred in Central America in 1596. It was next heard of in New England in 1618. After that it appeared on the island of St. Lucia, where in 1664-65-66 it took a tremendous toll of lives. New York was visited by it in 1668. Boston in 1691 and again in 1693. Philadelphia was first honored in 1695, and again in 1699. Between the years 1702 and 1800, yellow fever appeared in the United States 35 times.

Up to the time of the Philadelphia epidemic of 1793, the disease appears to have been accepted without question as the visitation of God, and no theories in regard to its

origin or mode of transmission were developed. In 1793, however, when the interest of the medical profession in Philadelphia was focused on the disease, two hypotheses were brought forward. One of them was that of direct importation, probably from

WALTER REED
(from Kelly's "Walter Reed and Yellow Fever")

the West Indies, and this was supported by the College of Physicians. The other view, held by some of the best authorities in the city, and in particular by Dr. Benjamin Rush, was that of spontaneous generation under appropriate conditions of filth, heat and moisture.

However, epidemics continued to appear and in 1853 came the great epidemic in New Orleans. By 1878, however, the question of yellow fever having been investigated by a United States government commission, the best authorities were inclined to the opinion that the disease was due to a specific germ. It was about this time that fomite, a term which for the next 20 years did constant service, began to come into prominence.

Thus, it would appear that the knowledge of yellow fever had advanced little beyond its status in 1793. For twenty years after this the knowledge of yellow fever remained stationary.

Experimental evidence proving that insects play an important part in the transmission of disease was first established by Dr. Patrick Manson in 1880. He proved that the mosquito acts as an intermediate host of the Filaria and is thus directly instrumental in the production of Filarial elephantiasis.

The first person to suggest that insects play a part in yellow fever was Dr. J. C. Nott, of Mobile, in 1848. However, the credit of first formulating a definite theory as to the transmission of yellow fever by means of the mosquito goes to Dr. Carlos F. Finlay, of Havana. The specific agent of the disease, however, had not been discovered in either the mosquito or man and the etiological factor remained undiscovered. Such was the condition of knowledge concerning yellow fever when Dr. Reed took up the problem.

Early in the year 1900, yellow fever appeared among the American troops stationed at Havana. In order to take advantage of the opportunity for investigating the etiology of this disease, a commission of medical officers of the United States was appointed and ordered to meet at Havana for this purpose. The men composing this board besides Dr. Reed, who was chairman, were Dr. James Carroll, Dr. Jesse W. Lazear and Dr. Aristides Agramonte. The last named was the only one of the commission who was immune to the disease.

The first efforts of the commission were directed to a conclusive experiment on the true nature of the *Bacillus icteroides,* which had been announced by an Italian scientist, Dr. Guiseppe Sanarelli, as the specific cause of yellow fever in 1897. The blood cultures of 18 patients in the active stage of the disease were carefully studied but the *Bacillus icteroides* could not be obtained from any of them, nor from cultures made at all autopsies. It was then considered established that beyond all doubt it might be excluded from further consideration.

Two separate lines of work now presented themselves, one the bacterial flora of the intestine and anaërobic cultures from the blood and various organs of yellow fever patients, the other the transmission of the diseases according to the theory of insect conveyance advanced by Dr. Finlay in 1881.

It so happened that just at this time an

opportunity was afforded Dr. Reed to investigate an epidemic of yellow fever at Pinar del Rio barracks, a little over a hundred miles from Havana. In investigating this outbreak, Dr. Reed discovered that, the true nature of the disease having not been suspected, no precautionary measures had been taken regarding the disinfection of bedding and clothing of the patient, except that in case of death the bedding was washed in bichloride. Notwithstanding the omission to disinfect the bulk of the contaminated articles, the disease had not been contracted by the nurses or the men who washed these articles. In one case, a prisoner in a guard house cell had contracted the disease after he had been confined to prison over a month. Eight other prisoners had occupied the same cell and none had contracted the disease, although one of them continued to occupy the bunk vacated when the sick man had been kept under strict military guard; it was impossible that the individual attacked could have acquired his infection directly from the town of Pinar del Rio. He was, as far as could be ascertained, exposed to no source of infection to which his companions had not been equally exposed, and yet he alone contracted the disease. Here was an accidental experiment carried out in true scientific manner with controls. It was conjectured at the time that perhaps some insect capable of conveying the infection, such as the mosquito, had entered the cell window, bitten this particular prisoner and then passed out again. This, however, was only a supposition.

Dr. Reed was so much impressed with such a possibility that he expressed the opinion to his colleagues that the plan of their work be radically changed and that the search for the specific agent be made secondary to learning something definite about the way or ways the disease was transferred from the sick to the well.

The commission then investigated the mosquito *Stegomyia fasciata* suggested by Finlay and went into great detail concerning its life cycle, habits and so on.

The line of work being determined, there arose at once the tremendous responsibility involved in the use of human beings for experimental purposes. The commission reached the conclusion that the results of such experiment, if positive, would be of sufficient service to humanity to be justified. They further concluded that it was their duty to submit themselves first before involving others in the experiment.

Dr. Reed at this time necessarily had to return to this country and the work was left in charge of Dr. Carroll. The experiment was begun by Dr. Lazear, who applied a number of infected mosquitoes to several persons, including himself, without result.

A second attempt was made a few days later and Dr. Carroll allowed himself to be bitten by a mosquito applied by Dr. Lazear. Two days later he was taken ill and within three days developed a full-blown case of the disease. Of three other persons who were bitten at the same time, only one came down with a mild attack.

Before Dr. Carroll had completely recovered, Dr. Lazear had been accidentally bitten while drawing blood from a yellow fever patient. He became violently ill and died within a week.

It was thus that Dr. Reed found things on his return. The puzzle of the transmission of yellow fever was slowly beginning to be solved. The experiments thus performed convinced the commission to such an extent that they made the following official statement: *"The mosquito acts as an intermediate host for the parasite of yellow fever."*

The first stage in the investigation thus completed, it became evident that if further experiments were to be of value, some means must be provided by which perfect control could be exercised over the movements of the individuals subjected to inoculation, in order to exclude every possible source of infection, except the mosquito.

This led to the establishment of Camp Lazear (it being named for the deceased member of the commission). This experimental sanitary station was established a mile from Quemados, Cuba, on a site well drained and freely exposed to the sun and wind.

The camp was put under strict quarantine. No one who had not spent the full period of the incubation of yellow fever was permitted to be inoculated. It was now proposed to attempt the infection of non-immune individuals in three different ways, namely, by the bite of the infected mosquito, second by the injection of blood taken from individuals in the early stages of the disease and lastly by intimate contact with fomites.

In the first part of the experiment four

non-immune army men allowed themselves to be bitten by mosquitoes, previously fed on patients with yellow fever, and every one developed the disease.

Similarly, another group was exposed to fomites, *i.e.*, bed clothing purposely soiled

CAMP LAZEAR

Building where the experiments were made which proved that yellow fever is not transmitted by means of infected clothing (fomites). The figure on the left is Dr. Carroll.

CAMP LAZEAR
(from Kelly's "Walter Reed and Yellow Fever")

with the excreta of patients with yellow fever, even sleeping in the very shirts that patients wore through their entire illness and not a single one contracted the disease. The fomites were a myth. By injecting small doses of blood from an infected person into a non-immune one, Reed was able to produce the disease as easily as by the mosquito method.

The value of Reed's work is known to us all. We see no yellow fever today. True, now and then, there are sporadic cases in Central America, but the disease as it was known before Dr. Reed's work, has entirely disappeared. It has been estimated that from 1793 to 1900 there were over 500,000 cases of yellow fever in the United States. The actual value of Dr. Reed's work is inestimable. Besides the thousands of lives saved each year, there is another benefit. The total financial loss to the country, because of this dread condition during the 1878 epidemic alone, was over a hundred million dollars.

To return to Walter Reed, the man. He was born in Gloucester County, Virginia, September 13, 1851. The Reed family were of English extraction, being descended from Sir Christopher Reed. Walter Reed's father was originally from North Carolina, although he passed forty years of his life in Virginia as a minister of the Methodist church. His mother was Pharaba White, a daughter of a North Carolina planter, who also came from a good English family.

When Walter was 15 years old, the family moved to Charlottesville, and there he was sent to a private school kept by a Mr. Abbot, a graduate of the University of Virginia. His education had been carried on without interruption during this time, except for one year during the Civil War, when all the schools had been closed. After remaining with Mr. Abbot for two sessions and spending one semester in the University of Virginia, he applied for admission to the Medical School at Charlottesville. This request was at first refused, because of his extreme youth, but later, after a personal interview with the faculty, he was told he could take the degree of Doctor of Medicine, if he could pass his examinations. The faculty, however, thought such undertaking by a youth of 17 was an impossibility. However, in the summer of 1869, he received his diploma, standing third in his class and having the signal honor of being the youngest individual ever graduated from that school of medicine.

Soon after his graduation, he went to New York and matriculated as a medical student in Bellevue Hospital Medical College, were he received a second M.D. degree a year later. His reason for taking this second course in medicine is not clear. Because of his youth he may have wanted more instruction than had been afforded at the University of Virginia.

After finishing at Bellevue, Dr. Reed was attached to several of the hospitals in New York and Brooklyn, among these the Kings County Hospital, where he was an interne. While at one of the Brooklyn hospitals, Dr. Reed attracted the attention of Dr. Joseph C. Hutchison, then the leading physician and surgeon of Brooklyn, and through his influence was appointed as one of the five inspectors of the Brooklyn Board of Health. At this time, Reed was but 22 years old, but he had already established his reputation as a young man of the highest talents, especially for skill in surgery.

In June, 1874, Dr. Reed paid a visit to his father, who was then living in the town of Murfreesboro in North Carolina. It was during this visit that he made the acquaintance of the young woman who was

later to become his wife, Emilie Lawrence. Miss Lawrence's father was a North Carolina planter of means and influence and was directly descended from an English John Lawrence, who had come to this country in 1636.

It was during the next year, in 1874, that Reed made up his mind to abandon the idea of general practice and to enter the army as a surgeon. His resolution to do this arose from his desire to possess an assured competency as soon as possible so that he might feel justified to ask Emilie Lawrence to marry him.

He took the examinations at the beginning of 1875 and passed them brilliantly, and this event was followed shortly by the announcement of his engagement to Miss Lawrence. He was first stationed at Willets Point, New York, but in the spring of 1876, just before his marriage was to take place, he was ordered to duty in Arizona. For this reason, the nuptials took place in April, 1876, some time before they had originally been planned.

Very soon thereafter he went to Arizona as post surgeon at Ft. Lowell. For the next 18 years, he went from one to the other of 15 different posts. He undoubtedly enjoyed this frontier life immensely, as he was fond of hunting, fishing, and living out of doors. He treated professionally not only the soldiers, but the pioneers and Indians for miles around. Dr. McCow, in his memoir of Dr. Reed, wrote: "For a man like Reed, already an earnest student, no better preparation for his future could perhaps have been made. His early army service must have singularly tended to develop in him the very qualities necessary for his final success. To the very end of his life, it was noticeable that, even when he had long given up the practice of medicine for work in the laboratory, he was nevertheless unexcelled at the bedside for unerring diagnosis and sound judgment in treatment. So also were the experiments which robbed yellow fever of its terrors, especially remarkable for simplicity, accuracy and completeness, or they would never have so quickly convinced the world of their truth."

Dr. Reed's home life was very pleasant according to his biographers. Two children were born to the Reeds, a son and a daughter. The son entered the army as a career, but of the daughter I could find no record.

Dr. Reed returned to Washington from his stay in Cuba in February, 1901. He had been honored at almost every turn in Cuba, but in his own country he had received little. However, in 1902, he was given an honorary M.A. at Harvard University. Soon afterward, the LL.D. degree was conferred on him by the University of Michigan.

Late in the year 1902, it became evident that he was very much worn by his scientific labors and that his physical condition was much below par. On November 12th, he was stricken with an attack of appendicitis; an operation was performed five days later, but it was found that the appendix had ruptured. It was removed and drainage tubes were inserted, but on the fifth post-operative day the signs of general peritonitis became evident, and from this time on Dr. Reed sank rapidly, dying peacefully in a state of unconsciousness on the sixth day after the operation, November 22, 1902.

Honors came thick and fast now. He was buried with full military honors, on November 25th, at Arlington Cemetery. The New York Academy of Medicine, the University of Virginia, Columbia University, the American Academy of Medicine, the International Congress of Medicine and many other scientific bodies at home and abroad passed resolutions, expressing their sense of the loss sustained by the profession and their sympathy for Dr. Reed's family. All of the leading journals of medicine published expressions of appreciation of Dr. Dr. Reed's work and lament of his untimely end.

Soon after his death, a number of his friends and colleagues organized the Walter Reed Memorial Fund and collected $25,000, the income from which was to be devoted to Dr. Reed's wife and daughter, for he died a comparatively poor man. And at their decease, the fund was to be used either in the erection of a monument to Dr. Reed's memory or in the promotion of researches in his especial field of work.

The greatest lesson of Dr. Reed's life is that the secret of happiness and usefulness lies in giving what we can to life rather than getting what we can from it. It was his consistent adherence to this principle that raises him morally so far above his fellows. A fitting epitaph to him is—Walter Reed, physician, surgeon, a scientist in the highest sense of the word "who gave to man control over that dreadful scourge, yellow fever."

OF GENERAL MEDICAL AND SURGICAL INTEREST

USE OF IODIZED OIL IN DIAGNOSIS OF NASAL SINUS CONDITIONS

Henry M. Goodyear, Cincinnati, asserts that the use of opaque or iodized oils is an important step beyond the simple roengenogram and can be used as a routine in the antrums, with little additional effort, and whenever roentgenograms are indicated. Their use in other sinuses may be confined to obscure cases in which surgical intervention is contemplated. For direct instillations, heavy petrolatum is used for dilutions to increase the viscosity. Iodized poppy-seed oil, 40 per cent, diluted with two parts of heavy petrolatum, or iodized rape-seed oil diluted 50 per cent, and brominized sesame oil full strength constitute the opaque mediums of choice. Iodized oils should be used immediately after irrigation or not at all for from seven to ten days, as swelling of the sinus membrance may follow within twelve to twenty-four hours after any irrigation. Swelling of the sinus membranes may occur following an acute rhinitis, necessitating the delay of roentgen examination. If water is being used as a primary irrigation, the first of the solution should be put in with a syringe and the volume recorded. Whether the antrum holds 3 c.c. or 20 c.c. is often an important diagnostic aid. Frontal sinuses may be filled with the patient in the knee-chest position. Sinuses previously opened may be studied by packing with a thin strip of gauze soaked in full strength iodized poppy-seed oil before roentgen examination. Sphenoids should be injected on one side at a time to prevent overlapping shadows, but the two antrums may be injected at the same time. In atrophic rhinitis the antrums may be filled with full strength iodized poppy-seed oil, which seems to have a beneficial effect. The use of stereoscopic views, with or without opaque oils, seems to offer some advantages.

—*Journal A. M. A.*

ORTHOPEDIC ASPECTS OF CHRONIC RHEUMATISM OR ARTHRITIS

Robert Bayley Osgood, Boston, suggests that there may be an orthopedic aspect to chronic arthritis; perhaps the relation of orthopedic surgeons to internists is slightly analogous to that of the physicists to the astronomers. Orthopedic surgeons dealing with acute and advanced cases of chronic arthritis have been conscious of two very different forms of the disease. The first type is called atrophic, because, although the earliest pathologic change is proliferation of the synovial membrane, which one may only guess at in the roentgenogram, there is also a very early diminution in the density of the bone ends which can be appreciated as atrophy in the roentgenogram and soon as actual loss of substance; there is an early atrophy of the muscles controlling motion of the joints; and the disease is much more common in the slender, asthenic, atrophic type of person. The age incidence is from birth to middle life.

The second type is called hypertrophic, because, although the primary change may be a fibrillation of the articular cartilage that cannot be detected in the roentgenogram, there is almost simultaneous lime-salt deposit in the form of chondro-osseus spicules and ridges at the articular margins, which is easily visible in the roentgenogram; there is no appreciable atrophy either of the bone ends or of the muscles controlling motion of the joints until very late; and the disease is perhaps more common in the stocky, sthenic, well nourished hypertrophic type of person who tends to an overdeposit of calcium in his tissues. Its age incidence is from middle life to death. As the disease progresses, in each type these characteristic changes become more striking in the roentgenograms, to the eye, when the joints are opened and in microscopic sections of tissue. The gross pathologic changes and the microscopic changes are consistent. In what ways may the orthopedic surgeons be useful in helping to control the types of diseases included under the term chronic arthritis? First, along with the rest of the medical profession by becoming aware of the wide incidence of the disease; second, by recognizing the prodromal signs and symptoms of the generalized disease; third, by helping to prevent deformity in the active stages; fourth, by restoring function by means of appliances and surgery when the disease has become quiescent.—*Journal A. M. A.*

STREPTOCOCCAL INFECTIONS OF EPIPHYSES AND SHORT BONES

Bacteriologic studies were made by D. B. Phemister, Alexander Brunschwig and Lois Day, Chicago, of biopsied material of two cases each of Kohler's disease of the tarsal scaphoid, Legg-Perthes' disease and Kienbock's malacia of the os lunatum. Streptococci grew in cultures of four cases and cultures of two remained sterile. A streptococcus which on blood agar plates was more hemolysing than green-producing and on dextrose blood agar plates was more green-producing than hemolysing grew on cultures of one case of Kohler's disease showing acute symptoms. Green-producing streptococci grew on cultures of one case of Legg-Perthes' disease and one case of Kienbock's malacia. A streptococcus which was not further identified grew in cultures of one case of Kienbock's malacia. One case of Kohler's disease, cultures and guinea-pig inoculations of which were negative, occurred in association with multiple osseous and lymph glandular tuberculosis. One case of apparent Kohler's disease developed following traumatism. These observations, assert Phemister et al., suggest that streptococci play an important rôle in the etiology of these diseases, but that other factors may also bring them about. Whether the streptococci reach the bone in an embolus which blocks the main artery or whether they lodge there alone remains undetermined.—*Journal A. M. A.*

USES AND LIMITATIONS OF SKIN TESTS IN ALLERGY

In recent years the use of protein skin tests in the etiologic diagnosis of allergic disease has become increasingly popular. Because of the inherent difficulties and limitations of these tests, much disappointment and criticism have resulted, asserts SAMUEL M. FEINBERG, Chicago. Sensitization tests should be considered only as laboratory guides. There are many limitations to the value of skin tests in allergy. Negative skin tests do not necessarily mean an absence of sensitization to these substances. Positive tests do not necessarily indicate the cause of the clinical symptoms. Complicating factors may be more important than the allergy. The difficulties may be met chiefly by employing, when necessary, other methods of testing, such as intracutaneous, subcutaneous, conjunctival, nasal and passive transfer; by clinical trials and elimination diets; by a broad knowledge of the clinical correlation and clinical experience in allergy; and by a willingness on the part of the clinician to consider other causes than allergy.—*Journal A. M. A.*

THE JOURNAL

OF THE

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FEBRUARY, 1931

"I hold every man a debtor to his profession, from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereunto."

—Francis Bacon.

EDITORIAL

POST-GRADUATE COURSES IN MEDICINE

Elsewhere in this number of the Journal will be found the announcement of courses to be given by the Post-Graduate Department of Medicine of the University of Michigan for graduates in medicine. This feature of higher medical education in Michigan has come to the fore within recent years so that little more is necessary than the bare announcement to bring capacity classes. This work has been carried on principally at the University Hospital and at Detroit. Courses will be presented in Detroit later in the year. In the meantime opportunity for intensive study for short periods of time is being offered at the University Medical School as part of the Post-Graduate program of the University and the Michigan State Medical Society. These courses will be each of five days duration and will be of such a nature as to cover the entire field within a regular academic year.

The courses of study now available are: Internal Medicine, which will comprise the subjects Pulmonary Tuberculosis, Cardiology, Gastro-intestinal Diseases, Metabolic Diseases, Diseases of the Blood and Blood-forming Organs. The work in Pediatrics will comprise Infant Feeding and the Nutritional Diseases of Childhood, The Infectious Diseases of Infancy and Childhood, Growth and Development, Allergy and Mental Hygiene. The courses in Internal Medicine and Pediatrics will not be given during the same period so that physicians may atttend work in both departments.

Ample provision is also made for intensive courses in Roentgenology and Laboratory Diagnosis and Serology. These courses will vary in length from two weeks to six months. Candidates for work in the Laboratory departments may enter on the first Monday of each month throughout the year.

The work as outlined here will be given at the University Medical School. The work to be given in Detroit is in process of preparation. It will be announced shortly in the columns of this Journal.

VOLUME II OF THE MEDICAL HISTORY OF MICHIGAN

By this time those who have subscribed for the Medical History of Michigan have received the complete set of two volumes. It goes without saying that this has been a monumental undertaking and the task has been well performed. This is not an attempt to review the volume. That task has been admirably accomplished by Dr. John B. Jackson of Kalamazoo (see page 957, December, 1930, number of this Journal). Too much credit to Dr. Burr is impossible. He will never be adequately repaid for the judgment, skill and perseverance which have gone to make up these two volumes unless the gratitude of the profession is adequate reward. We are sure that Dr. Burr has this.

"With the publication of this volume,"

says editor Burr in a well composed foreword, "the task of the compilers is concluded, although, like other works of men, it is neither finished nor complete. Practically nothing is for that matter.

"Medical contributions of excellence and important names and incidents have doubtless failed of mention, this owing to space limitations in the first instance, and, in the second, to the fact that they were not discovered by the History Committee.

"For better, for worse, the production is presented with all good will, and grateful appreciation of an opportunity to place on record something of the trials of professional forebears, their frequent journeys through a wilderness-tangle of painful experience to encounter at the end of the long, long trail only disappointment and chagrin. Withal, however, their achievement was admirable, and it is the best hope of the compilers that in this work, imperfect as it is, a foundation not too unstable is laid for some future historical superstructure worthy of a profession than which no other, by and large, has been as conscientious and useful, or so unvaryingly and self-sacrificingly consecrated to the public weal."

CHILD WELFARE CONFERENCE

During the latter part of November the decennial Conference on Child Health and Protection was held at the White House, Washington. A number of physicians and others from this state were invited by the President to attend. We have received a copy of the stenographic reports of the addresses made at the various sessions, which extended over four days. This report embraces one hundred and sixty-five columns of printed matter, so that the abstracting of it would be a rather gigantic task.

President Hoover, who gave the opening address, stated that the problem fell into three groups; first, the protection and education of the normal child; second, aid to the physically defective and handicapped child; third, the problem of the delinquent child. He gave the following statistics, which are in themselves interesting. Out of 45,000,000 children in this country, 35,000,000 are reasonably normal, 6,000,000 are improperly nourished, 1,000,00 have defective speech, 1,000,000 have weak or damaged hearts, 675,000 present behavior problems, 450,000 are mentally retarded, 382,000 are tubercular, 342,000 have impaired hearing, 18,000 are totally deaf, 300,000 are crippled, 50,000 are partially blind, 14,000 are wholly blind, 200,000 are delinquent, and 500,000 are dependent. These statistics are very impressive and it is a commendable fact that in the schools, of particularly the larger centers, provision is made for the deaf; we have also heart clinics, and provision for open air schools to take care of the tubercular as well as schools for the blind. It is a rather astonishing fact that in this land of plenty there can be six million improperly nourished children which, we presume, in the largest number of cases are *under-nourished* children. These in turn belong largely to the urban population. The condition is due, in large measure, to sporadic employment of fathers in the various industries. The great problem with the under-nourished child, it would seem to us, has as a basic factor seasonal unemployment in the various trades and industries. There is a tendency on the part of industry to speed up production, to get a surplus ahead and then to lay men off. This is one of the problems that must engage industrial statesmanship (we are not at all sure there is such a thing) in the immediate future.

AUTOMOBILE ACCIDENTS A LIABILITY TO MEDICINE

According to the Saturday Evening Post, automobile accidents in the United States cost hospitals in unpaid bills the immense sum of $7,000,000 a year. What these cost the medical profession in unpaid bills is not mentioned, owing to the fact that it is not so definitely known. For every unpaid hospital bill there is an unpaid doctor's bill. The careless motorist, according to the Post, leans confidently on his personal-liability and property-damage insurance for protection and freedom from worry. We are inclined to disagree with this statement. The careless motorist does not even carry such insurance. He is too selfish to give his possible victim that much consideration.

We believe, however, a graded system of insurance would be a good thing, as it would place a premium on careful driving. While we hesitate to propose any more laws in this law-ridden country, all motorists should be compelled to carry personal-liability and property-damage insurance. Inability to obtain such insurance, for whatever cause,

should bar them from the city streets and rural highways.

IF—

"If, as some critics urge, science and machinery were abandoned, if a few hundred thousand engineers (out of the earth's teeming multitudes) should quit work for good, the whole structure of modern society would come down about our ears, great cities would sink into ruins and grass would grow in their streets. Telephone and telegraph lines would cease to hum with messages; railway lines would fade away in rust; water would no longer flow at the faucet and the wastes of the city would block its sewers. Electric lights would go out and darkness fall at night on the whitest of the White Ways. The daily press gathering the news from the four corners of the earth would disappear, ocean liners would stop on the high seas and drift like chips of wood before the wind and wave. Epidemics such as the Black Plague would sweep through whole continents leaving festering death in their train."

—CHARLES BEARD in "Toward Civilization."

If the hundred thousand doctors in the United States were to take a six months vacation, or even if they remained at their posts and interpreted their duties as simply attending the sick, giving no advice to the family in regard to prevention of further illness among its members; no attention to isolation in the case of infectious diseases; no attention to the subject of periodic health examinations with the purpose of forestalling illness; no attention to immunization; no attention to hygiene in the family, epidemics as devastating as the Black Plague would claim their millions of victims. In any movement towards preventive medicine the practising physician from the very nature of his work is the man in the first line defenses.

IS STATE MEDICINE A SOLUTION?

We have received an editorial copy of a book* the aim of which, according to the description on a flaming red jacket, is "to put the layman wise to what goes on under the cover of medical 'ethics,' what abuses, what ignorance, are connived at in its name; to let him know just what state of advancement really prevails in the various branches of American medicine today as compared with other countries, to give him an inkling of the average man's helplessness in the face of what remains, in spite of so many fine individual doctors, the most medieval of our professions and point the way out—the organization of medicine as a science in preparation for the coming of state medicine." On reading this over we must confess we were somewhat alarmed and had begun putting our defense mechanism in order. However, as we began to read the book our attitude had become wholly changed. Within the past few years a number of articles on the social aspects of medical practice have appeared in the better class of lay magazines by more or less well informed laymen with ability to write. We have read a number of these and always with profit even when we disagreed. The present book is in the same class as the higher grade magazine articles and it is compiled by an able and intelligent writer. (We say *compiled* advisedly, inasmuch as the book contains a large amount of material which is quoted and abstracted from the writings of scores of men who are recognized as the leaders of the medical profession in the United States as well as Great Britain.) It is well documented. Were it not for the unadulterated frankness of the medical profession, however, in speaking openly and not "under cover," this book could scarcely have been written. Of course, it goes without saying that any conscientious doctor, and this includes the great majority of the medical profession, will see little to dispute in many of the fifteen chapters. This applies particularly to the author's observations and criticisms which have been based for the most part on those of observant members of the medical profession. The fact that doctors are their own most intelligent as well as severest critics is one of the most wholesome signs we have for the improvement of the profession. We hesitate to compare medicine with any of the other learned professions, but the fact that doctors are self-critical should free medicine from the taint of medievalism.

* * *

The writer attacks medical education, claiming that the result is unscientific, basing this judgment on therapy, which is the contact between doctor and patient. Recently has appeared another book,* by no less a person than Dr. Abraham Flexner, in which he launches an attack upon higher education in general as it obtains in this country. On the contrary, medicine is becoming more and more scientific. The more it becomes

*Fads, Frauds and Physicians, Diagnosis and Treatment of the Medical Dilemma. By T. Swann Harding; 409 Pages; Lincoln Macveagh, The Dial Press, New York.

*Universities American, English, German. By Abraham Flexner. New York Oxford University Press.

so, the less stress is placed upon drugs and the less the attempt to accomplish the impossible. It would be a good thing, we agree, if a process of elimination were attempted with the object of discarding useless and therefore ineffective therapeutic measures. This has been said many times by men in the profession whose training and experience entitle them to speak with authority. There is no closed knowledge in science. Science has been called "organized" knowledge. This is not a good definition. A thing that is "organized" ceases to evolve; it becomes fixed. From the time of Galen until the sixteenth century medicine was "organized," until Vesalius first, and Harvery later (1628), dis-"organized" it and made it scientific. A far better definition is that of Charles Singer, the medical historian. Science deals with the growing edge between the known and the unknown. It is "knowledge in the making." When knowledge becomes organized it is no longer science. Medical science, as everyone directly concerned knows, has been continually progressive for nearly half a century. But it has undergone fitful advances from the time of Harvey. True, it has a long way to go yet before it satisfies. There has been scarcely a time during this period that a book written on any phase of it was not practically obsolete within five years of its publication. Mr. Harding's idea of "organizing" medical science, however, refers rather to organization of the various factors concerned, rather than medical science itself.

In the course of the discussion are raised the questions: How scientific are our doctors? Are physicians humane to their patients? (Even for the purpose of furthering the cause of state medicine, good judgment would have omitted this chapter.) Do doctors often err? The problem of medical intelligence, where does medical quackery begin? How can you choose a good doctor? How should pharmacy be regulated? Getting your money's worth of doctoring; the hospital of today and the public. The chapter entitled Science and the Doctors' Dilemma is excellent. Space will not permit abstracting it. The manner in which these phases of medical practice are dealt with is interesting, even though there are two sides to every question. The writer, as we have already said, has noted shortcomings which the profession have been, themselves, for the most part, first to observe. To reveal our shortcomings it is necessary only to catalogue them. Many of the faults are incident to poor human nature and not a part of medicine at all; therefore, state medicine would not alter the situation in the least.

* * *

Referring to the subject of preventive medicine, the author writes as follows: "It does seem that we might soon see our way clear to spend more than sixty-three cents per person annually in disease prevention, yet it is a fact that few physicians are enthusiastic about preventive medicine. How can they, when their income rests upon illness? They become so only when they enter the service of the state." It goes without saying that this statement is not substantiated with any documentary proof, for the simple reason that proof is wanting, as any practising physician knows. Preventive medicine has developed more than any other department and in great degree through the coöperation of the rank and file of the profession.

Regarding the alleged apathy of physicians towards community health and preventive medicine, our response is well stated by Dr. William Gerry Morgan, who replied to the author of Fads, Frauds and Physicians as follows: "Perhaps the most unjust and malicious statement that I have ever read in the public press," says Dr. Morgan, "is the one just quoted. It is a serious charge. It is more than a serious charge, it is an accusation without a scintilla of truth as a foundation for it and would be unworthy of notice had it not received editorial comment."

Sir Arthur Newsholme in his fascinating volume on the Evolution of Preventive Medicine has the correct idea. He says: *"To give a sketch of growing knowledge of preventive medicine, without touching and encroaching on clinical medicine at each stage is impossible; for it is largely through the study of disease and its treatment that knowledge of its prevention has come; and furthermore, treatment of individual illness must always continue to be a chief means of preventing it."*

In the movement toward preventive medicine the practising physician has always been the chief factor.

* * *

Then there is the recrudescent attack upon

the cost of medical care. With a great deal of this the physician has nothing to do. The cost of drugs, surgical supplies and hospitals is regulated by the laity and physicians have little or no part in it, except refusing to make use of them wherever this could be done without harm to the patient.

According to statistics compiled by Dr. W. E. Rappleye, in comparing cost of medical care with the cost of other items which the people deem necessities, each family spends a year in patent medicines and drugs the sum of $25.00; in tobacco $67.00; in candy $37.00; movies and entertainment $35.00; soft drinks, ice cream and gum $34.00; the family automobile and its maintenance costs $187.00; and the amount paid to the physician is $24.00.

If this is the relative cost of the physician's services it is inconceivable how it can be considered excessive. We make use of the statistical average because Mr. Harding uses it in discussing the meager cost of preventive medicine which he refers to as sixty-three cents a year. The medical profession of this state in its post-graduate clinics and courses is striving for better medical service. If the above figures are correct, the cost is not excessive, particularly in view of the amount of service rendered gratuitously those who cannot pay.

* * *

Is state medicine the remedy? What would it mean for Michigan? It would doubtless mean greater efficiency if we are to view efficiency on the basis of mass production. One doctor on salary during a nine-hour day would be able to see and to minister to a great many patients, more, perhaps, than he would see in private practice in a week. We see this already in the free clinics. In spite of this fact, which is always seen under amalgamation of social and industrial forces, our author (Harding) says (under State Medicine), "All physicians in the district would be on the staff of the local central institution and would operate with its complete facilities immediately at hand." On the contrary, a small portion of the doctors of the state would be able to care for the sickness which now requires the attention of about 4,000, but what of the remaining doctors who would be forced out of the profession? We are suffering from *efficiency* at the present time. Every time there is a merger or an amalgamation of commercial or industrial interests we have forced out of gainful employment large numbers of highly competent men and women. The machine, which is undeniably one of the greatest factors in promoting efficiency, has eliminated man-power so that now we have a very serious crisis to contend with. Efficiency works according to the economic law of diminishing return. Up to a certain point results are beneficial; beyond that, beneficial good results diminish until instead of being a blessing, they become actually detrimental.

"But how shall this [State Medicine] be paid for?" asked the author, then proceeds to answer his own question as follows: "In part by the State." How the remaining expense is to be met he does not say. So we shall add, "entirely by the State," if the author's analogy of the public school system is to hold good. He goes on to tell that the government pays its civilian doctors from $2,400 to $5,000 and its army and navy doctors $2,696 to $3,152 if they have a family. Good. They may be obtained for a great deal less when the rank and file of doctors are open for competitive employment by the state. "To make medicine scientific," says our author, "we need some such organization as is outlined above."

On the simple basis of economy can we afford state medicine? State medicine would add greatly to the load the already burdened taxpayer is carrying. Taxation even as it prevails at present often results in the ruination of the home owner, on a more or less meager wage; it tends to drive out of business the larger property owner who already carries the major burden of government.

The next step is state dentistry, and it would be difficult to prophesy where it would end except in universal bankruptcy.

It is strangely significant that the advocates of state medicine are for the most part outside the medical profession. They have little to risk in any radical change; yet they marvel at what they call the conservatism of the medical profession who assume all the risk. What other profession or interest, be it commercial or industrial, would not resent interference on the part of outsiders?

We do not know what the future has in store. It may be medicine completely controlled by the state. In our editorial darkness we will not venture to prophesy. All the more necessary is it for the profession

to become alive to medico-social opinion outside the profession and we know no better recent work on the subject than the present with its bizarre title, Fads, Frauds and Physicians.

BARGAINS IN LIVING FLESH.
OPERATIONS FOR SALE.
THE BUYING POWER OF THE DOLLAR.
AMERICAN PHYSICIANS DO THE SURGERY ON HUNGARIAN PATIENTS.

These are a sample of headlines which appeared in Viennese as well as Budapest newspapers during the past summer. According to Ars Medica (the publication of the American Medical Association of Vienna), instruction in operative technic is not permitted on living patients in the state-supported hospitals of Austria. American post-graduate students accordingly betook themselves to the neighboring cities of Czecho-Slovakia and Hungary to obtain practise after the necessary basic work was covered in Vienna. Budapest was one of the cities which American physicians and surgeons visited for practical work. There was a large variety of material and good instruction could be obtained for a reasonable fee; as a result between twenty and thirty American physicians were in constant attendance.

The articles in the lay press which bore the above headlines evidently had an influence on the Mayor of Budapest, who directed the superintendents of all city hospitals to refuse permission to American post-graduate students to operate within their institutions.

It appears that Budapest has a population of about one million inhabitants; 80 per cent of this population is being cared for by 500 panel physicians, leaving the remaining 200,000 of population to be cared for by the remaining 3,500 physicians in private practice; that is, there is one physician for every 57 persons, so that the majority of the independent physicians are able to eke out only the barest existence. Along comes the American physician with his dollars which enabled him to get the choicest material and most expert instruction. Of course, the remuneration went to the professor, who forgot to share with his assistants. This, of course, met with opposition, resulting in the Mayor's ruling. It was found that some of the patients died and some did not do well, all of which was attributed to the incompetence of the American student surgeon. An investigation, however, was made, in which no negligence or irregularity was found. The newspapers of the city turned to the right about and condemned the Mayor's order, referring to the ingratitude on the part of the city in barring men from the United States, who did so much for suffering Budapest following the War.

THE BEAUMONT LECTURES

The Beaumont Lecture Foundation was created by the Wayne County Medical Society out of a fund appropriated by a number of its members during the war for the purpose of helping members of the Society and their families who might require loans. By the unanimous consent of the contributors to the fund when no longer needed for the original purpose for which it was authorized, it was decided to create a lecture foundation. The interest has been sufficient during the past eight years to defray the expense of bringing a lecturer to Detroit each year to give a series of lectures on some subject of a general nature and basic to the science of medicine. As a result there has been an array of speakers second to none other in the English speaking world. On a recent visit to London, the editor was delegated to interview Sir Arthur Keith with the purpose of securing him as lecturer. On reading over the list of subjects and speakers Sir Arthur commented on the fact that we had been able to procure such wonderful men, several of whom were personally known to him. The list included the following speakers and subjects: Inflammation, by W. G. MacCollum; Methods and Results of Direct Investigation of the Function of the Kidney, by A. N. Richards; The Thyroid Gland, by Charles H. Mayo and Henry W. Plummer; The Liver and Its Relation to Chronic Abdominal Infection, by C. G. Heyd and John A. Killian; Hormones and Structural Development, by Charles Stockard; The Human Constitution, by George Draper; The Gastrointestinal Tract, by A. Carlson; Behavior Patterns of the Alimentary Tract, by T. Wingate Todd. These series have since appeared with one exception in book form. So great has been the demand for several of the series that the

supply was exhausted soon after publication.

The members of the committee in charge of the Lecture Foundation serve for a period of five years. The members at present are Drs. William Donald, James E. Davis, Arthur McGraw, William Reveno, E. C. Baumgarten, W. E. Blodgett and J. H. Dempster.

The lectures have become such a valued feature of medicine in Detroit that a full house is assured each speaker. The name commemorates the work of one of the pioneer physiologists of the world who was in every sense a Michigan physician. Therefore, instead of making these lectures entirely a Wayne County affair an invitation is extended to every member of the Michigan State Medical Society to attend the lectures this year by Dr. James Ewing, Professor of Pathology of Cornell University, who will deliver the series on February twenty-third and twenty-fourth.

LO! THE POOR IMMIGRANT!

"Next?"
"Who, me?"
"Born?"
"Yes, sir."
"Where?"
"Russia."
"What part?"
"All of me."
"Why did you leave Russia?"
"I couldn't bring it with me."
"Where were your forefathers born?"
"I only got one father."
"Your business?"
"Rotten!"
"Where is Washington?"
"He's dead."
"I mean the capital of the United States."
"They loaned it all to Europe."
"Now, do you promise to support the Constitution?"
"Me? How can I? I've got a wife and six children to support." KALENS.

"According to Herodotus the Babylonians had no physicians, and they brought their sick into the market-places in order that passers-by might confer with them upon their symptoms, in the hope that the patient might elicit from some one who had been similarly afflicted; advice as to how to proceed to effect a cure."—DAWSON.

THE BRIDGE OF SIZE

The following little poem is a parody on Thomas Hood's poem, "The Bridge of Sighs." Our acknowledgments are due the Manchester Guardian, where so many of these humorous bits of poetry appear from time to time. The little poem is based upon a news item to the effect that a secret method of massage is being employed as "slendering" treatment. The woman, it is said, disappears into a cubby hole and is rubbed so violently that after a week she is guaranteed to lose three inches of her waistline.

One more unfortunate
  Burdened with beef,
Rashly importunate,
  Seeking relief!
Take her in graciously,
  Save her esteem—
Fashioned too spaciously,
  Broad in the beam.

Far too cherubical,
  Vastly too thick,
Into a cubicle
  Bundle her quick!
Where she sticks out a bit
  Treatment she needs;
Bang her about a bit
  Till she recedes.

Rub till she's angular,
  Lissome and lean—
Wholly rectangular,
  Fit to be seen;
Where she proves squeezable
  Scrub off the fat;
If it is feasible
  Roll her out flat.

Frail and ethereal
  Fain she would be—
Surplus material
  No one should see.
Stamp on her, jump on her,
  Pummel and pound;
Naught that is plump on her
  Ought to be found. . . .

Lead her forth tenderly,
  Aching and sore—
Ah! but more slenderly
  Shaped than before;
Summon the dutiful
  Mannequin crew:
Madam looks beautiful,
  Madam will do!

DEATHS

DR. GEORGE K. SIPE

Dr. George K. Sipe of Detroit died at his home, 6385 Burns Avenue, Detroit, December 9, 1930, of pneumonia, after a short illness. Dr. Sipe was born at Reading, Michigan, in 1869. He was graduated from the Detroit College of Medicine in 1908, since which time he has practised his profession in Detroit. Dr. Sipe was actively interested in medical affairs and had been one of the founders of the East Side Physicians Association. He was a former president of the East Side Physicians Association. Dr. Sipe was a member of Ashlar Lodge F. and A. M. He is survived by his widow; one son, James G. Sipe, a Detroit attorney; and by two daughters, Mrs. Vera Blaske and Miss Virginia Sipe.

DR. E. J. MARSHALL

Dr. E. J. Marshall of Marshall, Michigan, died at his home December 25, 1930. He was 77 years old and had lived in Marshall, Michigan, since 1880. Dr. Marshall was active in civic affairs of his town having twelve years on the Board of Education and six years on the city council. He is survived by three daughters, all of whom are married.

GENERAL NEWS AND ANNOUNCEMENTS

The place and date of the 111th Annual Meeting of the Michigan State Medical Society is Pontiac, September 22nd, 23rd and 24th.

Andrew P. Biddle, M.D., D.Sc. (Hon.), was elected at the annual meeting held January 6, 1931, President of the Detroit Library Commission.

Dr. Angus McLean of Detroit addressed the regular meeting of the St. Clair County Medical Society, January 6, on the subject "Trends in Medicine and Surgery."

Dr. and Mrs. N. A. Herring of Niles, Michigan, started south on the 19th of January to spend the remainder of the winter in St. Petersburg, Florida. They expect to return the last of March.

Dr. John B. Deaver of Philadelphia gave an address on the "Surgical Treatment of Peptic Ulcer" before the Wayne County Medical Society, January 6. Nearly a thousand members and guests of the Wayne County profession were present.

A joint meeting of the Detroit Roentgen Ray and Radium Society and the Detroit Academy of Surgery was held at the Book-Cadillac Hotel, Detroit, January 8, when the meeting was addressed by Dr. Guy L. Hunter of Baltimore. His subject was Renal Hemorrhage. Dr. William E. Lower of Cleveland spoke on Tumors of the Kidney and Their Surgical Treatment.

A questionnaire has been mailed to each member of the Michigan State Medical Society. It is requested that prompt attention be given to answering the various questions. This questionnaire is sent out with the approval of the Society in order to obtain information which will materially assist the functioning of the various standing committees of the Michigan State Medical Society.

The Beaumont Lectures will be held at the Maccabees Building headquarters of the Wayne County Medical Society February 23 and 24. The date as announced in the January number of this Journal was changed but the announcement of the new date came after this Journal was in process of being printed. A cordial invitation is extended to all members of the Michigan State Medical Society.

Dr. T. K. Holmes of Chatham, Ontario, died Christmas day at the age of 92 years. Dr. Holmes was an uncle of Dr. Arthur Holmes of Detroit. He was one of the best known medical men in Canada, having one time filled the office of President of the Canadian Medical Association. He was a graduate of the University of Michigan of the class of 1857. The doctor was a great traveller and a genuine scholar whose interests went beyond his professional sphere.

The American Journal of Roentgenology and Radium Therapy edited by Dr. Lawrence Reynolds of Detroit, a member of the Michigan State Medical Society, is one of the best of the special medical magazines of national scope. Among the contributions to the November number by members of the Michigan State Medical Society are the following; Mikulicz's Disease and the Mikulicz Syndrome; Their Treatment by Radiation, Drs. T. Leucutia and A. E. Price of Detroit. Hyperplasia of the Thymus by Dr. S. W. Donaldson of Ann Arbor. Dr. Hans A. Jarre of Detroit contributes an article on the Cin-Ex Camera.

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A Division of Epidemiology has been established in the Department of Health, beginning the first of January, 1931. The object of this Division is to make fundamental studies on the means by which certain communicable diseases are spread in a community, and the best methods for controlling the same. The Division is made possible by a contribution from the Rockefeller Foundation. The personnel is as follows: Dr. J. E. Gordon, Director; Dr. Sarah S. Schooten, Associate Director; George B. Darling, Statistician.

As the work develops, further personnel will be added. The central office of the Division will be at the Herman Kiefer Hospital. All records and resources of the department which are needed will be supplied this Division. The first studies will have to do with certain problems in connection with scarlet fever.

At the general meeting of Tuesday, January 6, 1931, the membership of the Wayne County Medical Society elected delegates and alternates to represent it in the House of Delegates of the Michigan State Medical Society as follows:

Delegates—Norman M. Allen, Jos. H. Andries, L. Byron Ashley, Andrew P. Biddle, G. Van Amber Brown, A. E. Catherwood, John L. Chester, Norman E. Clarke, Basil L. Connelly, J. D. Curtis, Jas. E. Davis, C. E. Dutchess, Bert U. Estabrook, L. J. Gariepy, T. K. Gruber, Clyde K. Hasley, Walter L. Hackett, L. J. Hirschmann, Frank A. Kelly, Chas. S. Kennedy, Chas. Lakoff, Henry A. Luce, C. F. McClintic, Richard M. McKean, G. C. Penberthy, H. W. Plaggemeyer, Wm. S. Reveno, J. M. Robb, Edw. D. Spalding, Wm. J. Stapleton, Jr.

Alternates—C. J. Barone, E. C. Baumgarten, D. S. Brachman, Wm. N. Braley, C. L. Candler, W. J. Cassidy, Don A. Cohoe, Daniel P. Foster, H. B. Garner, Ledru O. Geib, Leslie T. Henderson, A. J. Himmelhoch, Wm. H. Honor, Wm. E. Johnston, Frank Kilroy, Louis Klein, D. J. Leithauser, Nelson McLaughlin, L. J. Morand, A. E. Naylor, Frank S. Perkin, Ronald P. Reynolds, J. R. Rupp, Susanne Sanderson, F. Janney Smith, Verne L. Van Duzen, A. H. Whittaker, F. B. Wight, Frank C. Witter, Wm. P. Woodworth.

SOCIETY ACTIVITY

PROCEDURES TO BE FOLLOWED WHEN A DOCTOR IS THREATENED WITH MALPRACTICE SUIT

There seems to be considerable misunderstanding as to what course should be pursued when a member is threatened or is sued for malpractice. The Medico-Legal Committee of the State Society will defend every member in good standing through all the courts. In order that there may be no entanglements and that proper legal protection may be given, members are urged to observe the following instructions—

When threatened with suit or when served with a bill of complaint for malpractice, notice should be *immediately* given to the Medico-Legal representative of your local county society. Notice should also be *immediately* given to Dr. F. B. Tibbals, chairman of the Medico-Legal Committee, 410 Kresge Building, Detroit, Michigan, together with all papers or notices that may have been served upon you.

It is important that a member does not discuss either with an attorney or with the plaintiff any of the facts or details concerning the suit. Pursue a course of absolute silence and await full instructions from Dr. Tibbals. Do not engage any local attorney, but await instructions that will be given to each member in regard to the employment of legal talent. This procedure is absolutely essential and imperative in order that you may be surrounded with the fullest protection.

Members are urged, when attending fracture cases, to have an X-ray picture made before any attempt at reduction or treatment, and also to have several X-ray pictures taken during the course of treatment and upon the final discharge of the patient. Failure to do so makes procedure for defense difficult.

Remember, in all suits or threats of suit, to *immediately* send a full report to Doctor Tibbals.

COMMENTS

Yes, the Legislature is in session. Your Executive and Legislative Committee is on the job. Local Legislative Committees are urged to respond promptly to requests received from the State Committee.

Secretaries are urged to send in monthly reports of meetings and activities. Our history is published. The Journal will continue to record our activities for future record. Your reports will preserve your county records.

The Committee on Civic and Industrial Relations has held two meetings during January. A report will appear in the next issue. Members are urged to conform to the resolution of the House of Delegates and insist upon remuneration for filling out insurance blanks. A solid front is essential to overcome this imposition on the part of insurance companies.

The Board of Registration In Medicine will appreciate receiving reports of violations of the medical practice acts. Address communications to 1010 Maccabee Bldg., Detroit.

MINUTES

The minutes of the January meeting of the Council and the Transactions of the County Secretaries Conference will appear in the March issue.

DUES

Your annual dues are now payable. Assist your County Secretary by sending him your check today. Do not require him to send you several reminders or statements. Write that check now.

COUNTY SOCIETIES

ALPENA COUNTY

At the annual meeting of the Alpena County Medical Society held on December 18, 1930, the following officers, for the year 1931, were elected: President, Dr. D. A. Cameron, Alpena; vice president, Dr. N. C. Monroe, Rogers City; secretary-treasurer, Dr. Wm. B. Newton, Alpena; delegate, Dr. E. L. Foley, Alpena; alternate, Dr. A. R. Miller, Harrisville; legal representative, Dr. W. E. Nesbitt, Alpena.

The report of the secretary-treasurer revealed a paid-up membership of sixteen and the society in a flourishing condition with a substantial cash balance in the treasury.

WILLIAM B. NEWTON, *Secretary-treasurer.*

BERRIEN COUNTY

The Berrien County Society held their annual meeting in Benton Harbor at the Hotel Vincent, December 23, 1930.

At a short meeting held following a dinner the secretary's report for the year was read. Dr. J. J. McDermott, the retiring president, gave a short talk summarizing the year's program and making suggestions for the improvement of the society.

The report of the nominating committee was then read and the following men nominated for officers for 1931: President, F. W. Tonkin, Niles; vice president, Carl A. Mitchell, Benton Harbor; secretary-treasurer, W. C. Ellet, Benton Harbor; delegate to State Medical Society, W. C. Ellet, Benton Harbor; alternate, L. M. Rutz, Niles.

There being no further nominations offered a motion was made that a unanimous ballot be cast, and these men were elected.

Dr. O. R. Yoder of Kalamazoo gave the address of the evening with the subject, "The Psychological Management of the Patient." It was his contention that this was the fine art of the practice of medicine, bringing out in the course of his talk the inherent idea of the sick that the body is not a machine but a copy of the Diety and therefore different and to be handled and treated as a mystical thing. The futility of immediate disagreement with the patient's preconceived ideas, and the almost inflexible rule of treating the patient first and the disease secondary were some of the points that he brought out. The danger of overdoing this treatment and the nearness to quackery were also stressed. He brought out the absolute necessity of empiricism in prescribing by the successful physician.

His talk was extremely interesting and concerned a matter which the busy practitioner is often apt to neglect. Doctor Yoders' method of delivery kept his audience very attentive.

W. C. ELLET, *Secretary.*

IONIA-MONTCALM

The annual meeting of the Ionia-Montcalm Medical Society was held at the Hotel Belding, December 9, 1930.

Immediately after the dinner, the president named the nominating committee: Doctors Toan, Weaver and Lilly, who reported the following officers:

President, Dr. George E. Horne; vice president, Dr. W. W. Norris; secretary, Dr. John J. McCann; chairman of Medico-Legal Committee, Dr. John J. McCann.

Motion was made and carried that the annual fees for the year of 1931 would be $15.00; and for the dentists (associate members) $5.00.

Doctor Stanton then assumed charge of the program, introducing Doctor Corbus, of Grand Rapids, who spoke on problems and activities of the State Society; he referred to prospective legislation, economics, and the program planned by the Post-Graduate Medical Department of the Association in cooperation with the University of Michigan.

Dr. James Brotherhood, of Grand Rapids, then read a paper on "The Anemias," with particular reference to pernicious anemia. He emphasized the rôle of reticulocytes and their increase under liver therapy.

Dr. Charles V. Crane gave a travelogue of his recent trip to Europe, which was very interesting. He emphasized, however, that unless one wishes to spend a considerable length of time abroad, he will get much more in the way of satisfactory instruction in the clinics of our own medical centers.

Meeting then adjourned. Attendance twenty-four.

JOHN J. MCCANN, *Secretary.*

JACKSON COUNTY

At the December meeting of the Jackson County Medical Society the following officers were elected for the coming year: President, Dr. Ferdinand Cox; vice president, Dr. M. N. Stewart; secretary, Dr. R. H. Alter; treasurer, Dr. F. G. Ransom; directors, Dr. H. A. Brown, Dr. C. R. Dengler, and Dr. J. C. Smith; delegates, Dr. Phillip Riley and Dr. J. J. O'Meara; alternates, Dr. C. S. Clarke and Dr. H. A. Brown.

R. H. ALTER, M.D., *Secretary.*

KALAMAZOO ACADEMY OF MEDICINE

The forty-seventh annual meeting of the Academy of Medicine was called to order by the president, Dr. J. C. Maxwell.

Election of officers. The president asked for nominations for president for the coming year. Dr. F. T. Andrews nominated Sherman Gregg and briefly stated his qualifications. Dr. Gregg in turn nominated Dr. F. T. Andrews, calling to the attention of those present his loyalty to the Academy and State Society. Drs. Westcott and Squiers were appointed tellers and they reported to the president a majority vote for Dr. Gregg. Dr. Collins moved that the secretary be instructed to cast unanimous vote in favor of Dr. Gregg. Seconded by Dr. Boys. Unanimously carried.

The president called on Dr. Collins for the report of the nominating committee which is as follows:

First vice president, G. M. Riley; second vice president, W. R. Vaughn; third vice president, Paul G. Schrier; secretary, R. J. Hubbell; treasurer, Hugo Aach; librarian, Clara Unrath; censors (2),

R. A. Morter, L. J. Crum; delegates (2), F. T. Andrews, A. A. McNabb; alternate delegates (2), John Rickert, D. C. Rockwell.

Dr. Shackleton moved that this report be accepted and adopted as read. Seconded by Dr. Boys. Unanimously carried.

Attention was called to the treasurer's report printed in the bulletin. No questions or discussion. The report of the Public Health Committee as printed in the bulletin was accepted.

Communications were read.

No other committee reports.

No new business.

Dr. Gregg took the chair and called on Dr. J. C. Maxwell for his exaugural address.

Dr. Gregg introduced Dr. James Pierce of the University of Michigan, who gave very enlightening talks on "Trichomonas Vaginalis" and "Avertin Anesthesia."

Meeting adjourned.

In the evening at the Park American Hotel the annual banquet was well attended by the members of the Academy and their wives. Dr. C. A. Bennett presided as toastmaster and called for a "stand up" of the new officers present, and introduced our new president, Sherman Gregg.

Whistling solos were rendered by Miss Dorothy Mathews assisted by Miss Mary Dunn at the piano. Reverend William Gysan gave a very interesting talk on "Seeing the West" illustrated profusely by slides in natural colors. It included particularly scenes in the Black Hills, Yellowstone Park, the Grand Canyon, and the newly discovered Bryce canyon.

MANISTEE COUNTY

The Manistee County Medical Society met December 28, 1930, and elected the following officers for 1931: President, C. J. Grant, Manistee; vice president, D. A. Jameson, Arcadia; secretary-treasurer, Ellery A. Oakes, Manistee; delegate, Michigan State Medical Society, A. A. McKay, Manistee; alternate, H. D. Robinson, Manistee.

KATHRYN M. BRYAN, *Secretary, 1930.*

MECOSTA COUNTY

At the regular meeting of our Society held in Big Rapids December 9, 1930, the following officers were elected for the current year: President, Donald MacIntyre, Big Rapids; vice president, L. E. Kelsey, Lakeview; secretary-treasurer, J. L. Burkart, Big Rapids; legal advisor, James B. Campbell, Big Rapids; delegate to M. S. M. S., L. K. Peck, Barryton; alternate, B. L. Franklin, Remus.

The regular meeting of this Society was held at Reed City Tuesday evening, January 13, 1931. Drs. Witters and Kilmer entertained the Society, and Drs. Schermerhorn and Foshee, of Grand Rapids, furnished the intellecutal part of the program. An excellent dinner was served by our hosts in the new Osceola Hotel at Reed City. Sixteen members of the Society were present, and the meeting augurs well for the coming year.

JOHN L. BURKART, *Secretary-Treasurer.*

MIDLAND COUNTY

On January 9, 1931, a meeting of the members of Midland County Medical Society was held at the office of Dr. C. V. High, Jr., at Midland. Six of the eight members were present.

The new county health unit doctor was elected a member.

Dr. W. D. Towsley was elected president and Dr. E. J. Dougher secretary, for the year 1931.

E. J. DOUGHER, *Secretary.*

MONROE COUNTY

Monroe County Medical Society met at the Park Hotel, Monroe, December 18, 1930. An excellent dinner was served in the private dining room. Dr. Kretzschmer of the University Hospital, Ann Arbor, gave a talk on "Abnormal Bleeding in Obstetrics and Gynecology." He divided his subject according to the age of the patient and included a comprehensive discussion of treatment for each condition. The address was excellent and provoked an interesting discussion by the members present.

FLORENCE AMES, M.D., *Secretary.*

NEWAYGO COUNTY

The following were elected at the annual meeting held at Hart, Michigan, December 18, 1930, for 1931: President, W. L. Griffin, Shelby; vice president, L. P. Munger, Hart; secretary-treasurer, F. A. Reetz, Shelby.

FRED A. REETZ, *Secretary.*

ST. CLAIR COUNTY

The first meeting of the year was held January 6 at the Hotel Harrington, Port Huron. Our new president, Dr. J. E. Wellman, in the chair. The meeting was such that the good doctor will have to "go some" if he keeps up the pace he has set for himself. No doubt the very large attendance was due to the fact that Dr. Angus McLean was on hand to give us something of himself as well as one of his much appreciated papers.

The following is an abstract of Doctor McLean's address on "History of Medicine and Surgery" from the early Egyptian and Greek periods—stating that certain principles introduced in ancient times are still followed. Alcohol was used and recommended in the cleansing of wounds by the Greeks and Romans many centuries ago. Later the French used boiled brandy along with hot oil for dressing wounds. These were attempts at sterilization.

In the past several years dehumanized medicine has been practiced in closed hospitals and by state organizations; that is, the patient is known as number so and so, the patient frequently not knowing the name of physician who treats him or her. Physicians on a salary soon lose sympathy with suffering humanity. A part of the medical profession of our state favor State Medicine. The cost to the state will be a barrier to its acceptance by the people. Should State Medicine be accepted each county will request a hospital. There are eighty-three counties in the state (three have hospitals), eighty counties requiring a hospital of 100 beds each—at a cost of $3,000.00 per bed—a total cost of $24,000,000.00 without equipment. The state is bonded to its limit at present. How could the money be raised? The interest on this amount at 5 per cent would be $1,200,000.00 per annum. Statistics show it costs $5.00 per day to maintain a bed or $500.00 per day each hospital; the annual total maintenance of hospitals is $14,400,000.00. If 4,000 physicians are employed at $10.00 per day each, the annual amount would be $14,600,000.00 or a grand total for interest, maintenance and physicians' salaries of $30,200,000.00 annually. This would be raised by increased tax, already overburdened. $10 per day is the minimum amount a physician could live on and keep automobile, phone, etc. In Michigan there are about 5,400 physicians. This would leave 1,400 to carry on their specialties and institutional work as at present.

The doctor was loudly applauded and a vote of thanks was given him.

REGINALD SMITH, *Secretary-Treasurer.*

ST. JOSEPH COUNTY

The St. Joseph County Medical Society held their regular meeting January 11, 1931, at the Klesner Hotel in Centreville. Despite the inclement weather there was an excellent attendance.

The minutes of the previous meeting were read and approved. Motion by Dr. C. G. Morris of Three Rivers as to quantity buying for the entire society was tabled until the next meeting. Dr. Morris then made his report as delegate of the State Meeting.

Following the business meeting Dr. Geo. C. Hafford of Albion, Councilor for this district, gave a very interesting discussion on the duties and aims of this office.

Election of officers resulted as follows: President, G. J. Sweetland, Constantine; vice president, F. W. Robinson, Sturgis; secretary, R. A. Springer, Centreville; delegate, C. G. Morris, Three Rivers.

J. H. O'Dell and R. A. Springer were reappointed on the Indigent Committee. Meeting adjourned.

R. A. SPRINGER, M.D., *Secretary.*

WAYNE COUNTY

Professor James Ewing will present the 1931 Beaumont lectures for the Wayne County Medical Society, Monday, February 23, at 8:30 P. M., "Causation of Cancer"; Tuesday, February 24, 11:00 A. M., "Diagnosis of Cancer"; Tuesday, February 24, 8:30 P. M., "Treatment of Cancer." All members of the Michigan State Medical Society are cordially invited to attend the Ewing lectures.

Dr. Howard Fox of New York City will speak at a joint meeting of the Wayne County Medical Society and the Detroit Dermatological Society, February 3. The subject will be "Modern Trend of Skin Diseases."

The joint meeting between the Detroit Dental Society and the Wayne County Medical Society will feature a symposium by local physicians and dentists. The date will be February 10.

February 17 is the date set for a joint meeting between the physicians and lawyers of Detroit. The program of this joint endeavor will be announced at a later date.

Dr. F. C. Mann of The Mayo Clinic, Rochester, Minnesota, will speak to the Society, March 3. His subject will be "Physiology of the Liver."

On March 10, Dr. William Englebach of St. Louis will speak on "Endocrines."

A list of specialists and general practitioners of Wayne County is being compiled for use in the Executive Office of the Wayne County Medical Society. Every year, hundreds of calls are received from the public asking for lists of physicians, surgeons and general practitioners. This new list will aid in giving the citizens the authentic and reliable information they deserve.

The Noon Day Study Club, a very active organization of Wayne County physicians and surgeons under the age of forty years, has enjoyed a most unique experiment this year. The medical group, which meets Tuesday noon in the club rooms of the Society, and the surgical group which convenes at the same hour on Friday, has presented a postgraduate course in all the subjects of medicine and surgery. Large crowds have been in attendance at every meeting. In addition, the Noon Day Study Club has sponsored several well-attended social functions. The mixed bridge party of January 14 was attended by approximately 150 and was singularly successful.

The Cafe of the Wayne County Medical Society has been a great feature in attracting hundreds of physicians to the club rooms of the organization. During December, 1930, 2,395 luncheons, 231 dinners, and 138 suppers were served in the cafe. Members of the Michigan State Medical Society who are in Detroit during the noon hour any day are cordially invited to visit the cafe of the Wayne County Medical Society, 1124 Maccabees Building. A splendid luncheon in the company of your Detroit medical friends will be enjoyed. Doctors are urged to introduce themselves to the Executive Secretary, who will see that out-of-town guests are made to feel at home.

The Detroit Clinical Bulletin has been getting larger gradually so that on January 13 four entire pages were given to the listing of surgical operations in the city of Detroit. Individual copies of the Detroit Clinical Bulletin will be mailed to out-of-town physicians upon request. The Bulletin acts as a guide to physicians who visit Detroit for its postgraduate opportunities.

The Medical Library of Detroit is open on Wednesday and Friday evenings until 9:00 P. M. This new experiment was inaugurated January 7, 1931, through the efforts of Dr. Andrew P. Biddle, who has been recently elected as president of the Detroit Library Commission.

The delegates and alternates to the House of Delegates of the Michigan State Medical Society from Wayne County are elected at the meeting of January 6, 1931.

The active membership of the Wayne County Medical Society for 1930 was equal to the total number of physicians in the states of Idaho, Nevada, Arizona, New Mexico and Wyoming. This includes all physicians in these five states, whether they are members of the American Medical Association or not. The medical population of these states is as follows: Idaho, 393; Nevada, 130; Arizona, 411; New Mexico, 367; Wyoming, 232, or a total of 1,433 physicians.

The Bulletin of the Wayne County Medical Society annually contains 1,664 pages. This is equal to over five novels of the average length of 300 pages. Imagine writing more than five novels in three hundred and sixty-five days! Yet this is the work done by the Editorial Board of the Society and by the Official Bulletin Publishing Company, Chicago. The weekly issue of the Bulletin contains 32 pages.

WOMAN'S AUXILIARY, MICHIGAN STATE MEDICAL SOCIETY

MRS. L. J. HARRIS, President, Jackson, Mich.
MRS. J. EARL McINTYRE, Secretary, Lansing, Mich.

Will the County Societies please send in the names of the newly elected officers of their respective societies?

Yours respectfully,
LOUISE T. (MRS. P. R.) URMSTON,
Publicity Chairman.

JACKSON COUNTY

Mrs. L. J. Harris, our state president, left Sunday, January 10th, for Florida.

Recently the Jackson County Auxiliary were invited to inspect the new four story addition to the Foote Memorial Hospital, Jackson, Michigan, which has just been completed and opened to the public.

This new addition was erected and equipped at a cost of $200,000 entirely donated by two of our outstanding public spirited citizens.

The superintendent and nursing staff of the hospital invited the Woman's Auxiliary to the Jackson County Medical Society for a tour of inspection and tea.

An interesting afternoon was spent inspecting this new addition and equipment, and the pleasure of meeting the nursing staff was greatly enjoyed.

MRS. JASON B. MEADS, *Secretary.*

WAYNE COUNTY

We hold regular monthly meetings for the entire membership and their friends. The quality of the material presented has always been of the highest order. The program for January 13 included a talk by Dr. A. D. Pilades on the "Underprivileged Boy" and a talk by Dr. R. C. Jamieson on "Skin, Scalp, and Cosmetics." Dr. Pilades is president and director of the Boys Clubs of Detroit, and Dr. Jamieson limits his practice to dermatology. The program for February includes a talk by Judge Alfred J. Murphy. It will be a joint meeting with the Auxiliary of Oakland County.

In December the membership dressed dolls for the Goodfellows of Detroit. This was enjoyed thoroughly by all who participated.

Recently a "Student Loan Fund" for worthy medical students was established. Needless to say that its purpose was soon fulfilled.

We maintain a membership in the Michigan Anti-Narcotic Association, and have made substantial contributions in clothing and reading material.

Respectfully submitted,

MRS. C. I. OWEN,

Bulletin Editor, Wayne County.

BAY COUNTY

Mrs. Paul R. Urmston was re-elected president of the Woman's auxiliary of the Bay County Medical Society at their dinner meeting last evening at Virginia's Tea Shoppe. Mrs. J. W. Gustin was named vice president, Mrs. Roy Perkins, secretary, and Mrs. H. M. Gale, treasurer.

Covers were marked for twenty guests at the attractively appointed tables for dinner.

Four new members were also enrolled last evening.

The next meeting will be held the latter part of January at the home of Mrs. V. H. Dumond. Mrs. C. A. Steward and Mrs. F. S. Baird will be in charge of the program.

HIGHLAND PARK CLINIC

Everything possible was done by the Highland Park ladies for the entertainment of the visitors at the clinic held there in November and we wish to thank them for this pleasure.

A committee composed of the wives of members of the Highland Park Physicians Club entertained the visiting women; while their husbands were attending the Fifth Annual Clinic.

Registration was at the Nurses' Home of the Highland Park General Hospital, at which time one hundred and fifty registered.

Mrs. C. C. Vardon was the general chairman and was assisted by Mrs. E. G. Minor and Mrs. Charles J. Barone.

The registrants were taken to the Detroit Institute of Arts. Mrs. Don A. Cohoe was in charge of the transportation.

Professional guides were furnished to conduct the tour of the Museum. An hour musical was given in one of the rooms of the Museum. This was conducted by Mrs. W. N. Braley, who was assisted by Mrs. Tresa Way Merrill.

Mrs. W. L. Hulse, who was in charge of reservations for the luncheon, was assisted by; Mrs. E. M. Vardon, Mrs. H. B. Woods, Mrs. Cecil Mayne, Mrs. E. V. Mayer and Mrs. Roy Smith. Luncheon was served at the Ford Greenfield Village. The luncheon hostess was Mrs. G. Van Amber Brown.

Mrs. Frank Witter and Mrs. B. Friedlaender acted as the Hostess Committee.

After luncheon the women were guided through the Greenfield Village and the Ford Air Port, and in the evening met with their husbands for dinner at the General Motors Building.

After the dinner Mrs. Lester J. Harris, president of the Woman's Auxiliary to the Michigan State Medical Society, addressed the audience on "Activities of the Woman's Auxiliary."

All present enjoyed the delightful day and we hope to exceed this, next year, and have hopes of a larger attendance.

MINNIE G. (MRS. C. J.) BARONE.

THE DOCTOR'S LIBRARY

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 14, No. 3, (Mayo Clinic Number, November, 1930.) Octavo of 261 pages with 50 illustrations. Per Clinic year, July, 1930, to May, 1931. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1930.

RECENT ADVANCES IN THE STUDY OF RHEUMATISM. Frederic John Poynton, M.D., F.R.C.P. (London), and Bernard Schlesinger, M.A., M.D. (Cambridge), M.R.C.P. (London). 25 illustrations. P. Blakiston's Son and Company, Inc., Philadelphia, Pa., 1931. Price $3.50 net.

This book takes up the problem of rheumatic disease under two headings, that is, acute rheumatism and chronic rheumatism. Under the acute form, particular attention is paid to the manifestations of the disease in children. The insidious onset of the disease is especially stressed. In this as well as the chronic form the generalized character of the process is emphasized and an effort is made to keep the physician from focusing his attention on the joint manifestations alone. The various methods of treatment are fully discussed, especially the more recent forms. The conclusions as to the value of the different methods of treatment are good evidence in themselves of the scientific and common sense attitude of the authors toward this complex subject.

THE STATE HEALTH DEPARTMENTS OF MASSACHUSETTS, MICHIGAN, AND OHIO. With a Summary of Activities and Accomplishments: 1927-1928. James Wallace, M.D., C.P.H. $1.50 Postpaid. The Commonwealth Fund Division of Publications, 41 East 57th Street, New York.

This is an analytical and comparative study of the organization and activity of three of the stronger state departments of health, made by the Associate Field Director of the Committee on Administrative Practice of the American Public Health Association.

Public health work is more and more subject to self-examination as a step toward greater efficiency. The Committee on Administrative Practice, representing active health workers, has set up yardsticks for the measurement of city and county health service and has applied them in many field studies. The present investigation was made at the request of a number of health officers who desired a similarly objective study of state programs. The Committee believes that this volume will prove useful for teaching purposes in institutions training men for state and local public health work, and may form the beginning of detailed studies of the individual functions of state health departments, out of which suitable standards for judging the adequacy of statewide services may eventually be developed.

TREATMENT OF EPILEPSY. Fritz B. Talbot, M.D., Clinical Professor of Pediatrics, Harvard University Medical School; Chief of Children's Medical Department, Massachusetts General Hospital. The MacMillan Company. New York. Price, $4.00.

This book on the treatment of epilepsy deals more particularly with the theory and use of the ketogenic diet. The author believes it has been successful in a large enough number of cases and over a long enough period of time to justify its use by the practitioner. The dehydration and other methods of treatment are also discussed, but in the author's opinion the dehydration method has not as yet been satisfactorily evaluated. The technics of both the ketogenic and dehydration methods are described in detail. There are many tables showing the caloric values and vitamin contents of the various foods and also many sample menus. One chapter is devoted to the discussion of the factors necessary for an understanding of the dietary treatment, which includes basal metabolism, protein requirements, vitamins, acidosis, ketosis, alkalosis and many other factors dealing with diet and growth. Aside from its special purpose this book is a source of much information with reference to diet and metabolism in general.

CHRONIC ARTHRITIS AND RHEUMATOID AFFECTIONS WITH RECOVERY RECORD. Bernard Langdon Wyatt, M.D., F.A.C.P., with the collaboration of Louis I. Dublin, Ph.D., and foreword by Dr. J. Van Breemen. William Wood and Company, New York. Price, $2.50.

In this book the author attacks the problem of chronic arthritis from the clinical and practical point of view rather than from the theoretical standpoint. He emphasizes early diagnosis and treatment and makes a plea for a more optimistic attitude in dealing with these patients. He emphasizes the fact that the various joint affections are manifestations of other more general disturbances in the body, such as metabolic changes, focal infection, etc. All methods of treatment are discussed and evaluated and are directed primarily toward increasing the patient's natural powers of resistance and toward removal of causes wherever possible. Diet, joint exercises, massage, sun baths and orthopedic measures are discussed in considerable detail. This book is not only intended for the general practitioner, but also for the arthritic patient. It is intended to assist in producing better coöperation between the physician and his patient without countenancing either self-diagnosis or self-treatment. It seems well designed for the accomplishment of such an idealistic purpose.

NERVOUS INDIGESTION. Walter C. Alvarez, M.D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation). Paul B. Hoeber, Inc., New York, 1930. Price, $3.75.

From the reviewer's point of view, this is one of the most interesting books that has yet appeared on a medical subject. There are several reasons why every physician should read it. In the first place it is written in an entrancing style with a vein of humor running all through it; the author is a person of wide experience not only as research student, but as praticing internist connected with one of the largest clinics (Mayo's) in the world. Thirdly, it deals with the art of practising medicine as much as with the science, affecting the field concerned, namely functional ailments of the alimentary tract. It is a good book to put in the hands of the young doctor beginning practice after serving his hospital internship where he has been brought continually in contact with disease having a demonstrable organic basis. The book is written with acceptance as fact that the symptoms of the patient suffering from nervous indigestion are as real as those produced by many organic diseases. The author has emphasized the importance of all those qualities in the physician such as insight, tact, patience and sympathy so necessary in the treatment of nervous indigestion. In the matter of treatment Dr. Alvarez disparages the routine use of roughage in the management of colonic stasis. In fact, the cases in which he would use it are limited in number. He is very explicit in the matter of thorough examination which would eliminate the possibility of any organic lesion, before concluding that the patient seeking aid comes under the category of one suffering from nervous indigestion. He condemns the daily use of laxatives in these cases. The author advocates the use where necessary of hypnotics and expresses himself to the effect that physicians are inclined to use them too sparingly, feeling that they belong to the

habit forming narcotic class, which the author claims is not the case. The last chapter in the book is made up of extracts from the writings of such men as Osler, Francis Darwin, Oliver Wendell Holmes, Richard Cabot, S. Weir Mitchell, John Brown, Francis W. Peabody and others which pertain to the subject of functional indigestion. The author evidently obtained a great deal of pleasure and satisfaction from the writing of this work inasmuch as we have read it with a great deal of delight. The print is good size, the paper first class quality, so that taken altogether we have a splendid specimen of the bookmaker's art.

CHRONIC ANTERIOR UVEITIS

M. N. BEIGELMAN, Los Angeles, reports five cases of chronic anterior uveitis in which a thorough examination failed to reveal any other etiology of the uveitis except syphilitic infection In two cases some foci of infection were found, but their removal had no effect on the course of the uveitis. In view of the wide variety of ocular lesions caused by syphilis, he felt justified in assuming that the uveitis in these cases was also syphilitic in origin; that in all of the cases the general syphilitic infection was of long duration, from fourteen to thirty-two years. One patient presented early signs of tabes; another, those of progressive paralysis. The condition was obviously a late ocular complication in syphilis, quite different from the usual type of acute iridocyclitis in the secondary stage. In four of the five cases specific treatment was administered and, although it was conducted vigorously and for a prolonged period, no improvement could be noticed. Because of that, in two cases nonspecific therapy was resorted to with the most encouraging results. In one case the action of typhoid vaccine was obviously nonspecific. Some further elucidation of its therapeutic aspects seems to be advisable. The success of tuberculin therapy in one case brings up the question whether or not the uveal lesion was of a tuberculous nature, particularly because of the prevailing opinion that tuberculosis is the chief etiologic factor in chronic anterior uveitis. However, in this case the tuberculin test was negative, no evidence of systemic tuberculosis was found, and in the ocular lesion no clinical suggestion of tuberculosis, such as iris nodules or retinal perivasculitis, could be detected.—Journal A. M. A.

THE SEQUELÆ OF BILIARY TRACT INFECTION

JOHN B. DEAVER, Philadelphia, reports on the more important sequelæ of biliary tract infection in which the gallbladder has been considered as the center of attention. He states that some of the sequelæ of cholecystitis are loss of the function of the gallbladder, dilatation of the common duct, insufficiency of the sphincter of Oddi, gallstones, choledochitis, cholangeitis, hepatitis, biliary cirrhosis, pancreatic lymphangitis, chronic pancreatitis, carcinoma of the gallbladder, myocarditis, focal infection and pylorospasm. Consideration of this array of diabolic forces should be sufficient reason to make one appreciate the serious potentialities of infection of the gallbladder. To Deaver there seems no valid reason to withhold the help that surgery can offer. Improvement in surgical end-results will follow earlier intervention, that is, before the sequelæ of biliary tract infection have become established.—Journal A. M. A.

CLINICAL SIGNS OF HEART DISEASE

JAMES B. HERRICK, Chicago, asks: Why should not physicians employ in diagnosis the classification suggested by the Heart Committee of the New York Tuberculosis and Health Association, which is in conformity with the nomenclature for cardiac diagnosis approved by the American Heart Association? The case of aortic leak might then be called syphilitic aortitis with aortic regurgitation, cardiac hypertrophy, regular sinus rhythm, class 2 A; i.e., activity slightly limited. Here the etiologic and pathologic anatomic features are plainly set forth with the clinical and functional facts also considered. The case of mitral stenosis may be described as rheumatic mitral disease with stenosis, auricular fibrillation with activity seriously limited, classed briefly as class 2 B. Again, etiology, anatomic pathologic lesion and functional capacity are expressed. All of these features may with advantage be included in the diagnosis. In a discussion of clinical signs of heart disease with particular reference to etiology, the questions involved are difficult, the answers somewhat uncertain. Too many cases are encountered in which even with greatest care the cause of the cardiac symptoms may escape detection. But it is only by trial and search that knowledge will come. The search for causes, the comparison of results, together with statistical, clinical and necropsy studies, will enable one to be more accurate in the diagnosis than has been the case in the past. To be impressed by the lack of uniformity in diagnosis, one has only to go to the health department of any large city and look over the causes of death as recorded on the death certificates. Syphilis as a cause is rarely put down, largely because of the physician's desire to shield the reputation of the dead man and his family. Pericarditis, endocarditis and myocarditis and angina pectoris are in evidence. On the whole, the diagnoses are vague and lack uniformity. A statement on the death certificate as to the cause of the disease, or even that the cause was unknown, would be helpful. It would show to the student of statistics that this point had been considered and would permit of deductions that would otherwise be unwarranted. Herrick offers suggestions.—Journal A. M. A.

PROGRESSIVE NATURE OF CARDIAC FAILURE

C. SIDNEY BURWELL, Nashville, Tenn., points out that it is obvious that the most successful method of preventing or postponing death from heart disease, is to prevent the occurrence, to reduce the severity or to shorten the duration of the conditions leading to heart disease. Speaking in general terms, this means the control of hypertension and vascular diseases of acute rheumatic fever, and of syphilis. The most effective way, then, to attack heart disease is to attack syphilis, hypertension and acute rheumatic fever. Recognition of limitations in controlling these conditions makes it clear that in the present state of medical knowledge it is not possible to make an effective attack on heart disease as a whole by preventing its causes. It is, then, urgently necessary to encourage investigation into the problems of its causes: hypertension, acute rheumatic fever and syphilis. Meanwhile physicians must do what they can by the application of what is known about them now. Once heart disease due to these or other causes is established, the rate of its advance may be retarded by wise care. By heart failure is meant a group of symptoms and signs dependent on congestion in various parts of the body. The development of the picture of congestive heart failure carries with it an extremely grave prognosis. Complete recovery is practically unknown and response to treatment, while often striking, is only temporary. The average duration of life after the onset of the symptoms of congestive cardiac failure is unpleasantly brief. Heart failure usually occurs in successive attacks which come closer and closer together and respond less and less to digitalis and other

therapeutic means. The functional changes in the heart muscle may well become irreversible as the condition progresses, but there is reasonable ground for hope that in the early days or weeks of failure they are reversible. The problem is, then, to seek out the change or changes in the heart muscle that lead to failure, in the hope of being able to reverse them. Burwell points out the limitation of the present-day methods of the treatment and prevention of heart disease, to establish the point that this limitation is due to ignorance of certain fundamental factors involved, and to suggest certain promising lines of investigation along which useful advances may be made.—Journal A. M. A.

PREDICTS CANCER CURES WILL REACH 60 PER CENT

More than half the cases of cancer will be cured, instead of less than one-tenth, when the public has learned to seek an examination at the first warning sign, according to Dr. Joseph Colt Bloodgood, of the Johns Hopkins University. If this education of the public is carried to its possible limitations, cancer of the skin and mouth certainly and cancer of the cervix probably will be placed among the preventable diseases. This does not mean that there is any new cure for cancer. It rests simply on the application of what is already known. "We have no cure for cancer to announce," Dr. Bloodgood said. "The only treatments for cancer today that are established are surgery and irradiation by X-rays and radium. Nor has there been discovered any differential stain for the cancer cell, nor any other method for its recognition beyond the microscope and the X-rays. There is yet no blood test for cancer similar to the Wassermann test for syphilis or the metabolism test for toxic goiter. Nor are we any nearer, apparently, in the discovery of the exact cause of cancer which might lead to a preventive or curative treatment as we have now for diphtheria."

The necessity for a nation-wide cancer survey, such as the Harris resolution now before the Senate would make possible, was stressed by Dr. Bloodgood. In spite of the fact that the physician is seeing the cancer patient earlier today than formerly, and that he is better able to treat cancer, the number of deaths from cancer is increasing. The reason for this would be determined by the survey. Education of the public must go on. Likewise the physician must be educated to recognize cancer in its earliest stages, when it is most readily cured. The development of a stain that would differentiate the cancer cell from other cells would greatly facilitate early diagnosis. Better methods of diagnosis are particularly important in the borderline cases, where correct diagnosis may save the patient a distressing and possibly a mutilating operation. The borderline cases are very often found in tumors of the breast.—Science Service.

ERNST FUCHS

The death of Hofrat Prof. Ernst Fuchs of Vienna in his eightieth year removes one who had come to be known as "the grand old man" of ophthalmology. Few can have had a wider circle of friends and acquaintances, and many, in countries as far apart as Austria and China, India and America, will feel sad that they will see him no more. His dinner parties at his delightful home in Vienna in pre-war days were usually of the nature of an international gathering. Fuchs was an excellent linguist and an ideal host. A great traveller, there can be few countries of any note he had not visited. He was a very hard worker and a prolific writer. His Text-book of Ophthalmology, one of the best medical text-books ever written, has run through some dozen German editions, half a dozen English ones, and has been translated into many other languages. Fuchs, like many great men, was a very humble one. He would ask anyone working in his clinic who possessed special knowledge to impart it to him. He would discuss sympathetically any difficulty or problem with those far inferior to himself in knowledge and give of his best to them. Few, if any, students left his clinic without a feeling of regret and a real affection for the man himself. Fuchs was formerly a wealthy man but the war left him impoverished. How he faced that difficulty at an advanced age, and overcame it by working abroad, is a testimony both to his personal courage and to the esteem in which he was held outside Austria. In this country his name will be put in the niche of fame alongside those of Bowman, Donders, von Graefe, and Nettleship.—The London Lancet.

HABITUAL DISLOCATION OF THE SHOULDER

MELVIN S. HENDERSON, Rochester, Minn., reports forty operations on thirty-seven patients. Anterior capsulorrhaphy, done on sixteen patients for anterior recurring dislocation, resulted in cure in 37.5 per cent; all of these operations were done more than ten years ago. Three patients who underwent posterior capsulorrhaphy for posterior dislocation remained well. Of eight patients who underwent Clairmont operations more than five years ago, 50 per cent were cured. Tenosuspension performed on ten patients has resulted in cure in 100 per cent of cases to date; in two cases the operations have been done for more than five years; in two, for more than three years; in one, for more than two years; in two, for more than one year; in two, for more than eight months; and in one, for more than six months. The success of the operation depends on the careful placing of a strong piece of the tendon of the peroneus longus muscle to act as a suspension ligament through drill holes in the acromion process and the head of the humerus. The incisions can be kept small in size, which is a worthy consideration in women.—Journal A. M. A.

LEPROSY ARRESTED BUT NOT "CURED," EXPERT SAYS

Patients discharged from the leprosy hospital at Carville, La., cannot be spoken of as "cured" of leprosy, states Dr. O. E. Denny, commanding officer of the Carville Leprosarium. Dr. Denny told the House Appropriations Committee at Washington that 75 patients had been discharged from the Carville institution as arrested cases, and no longer any menace to public health. A few of the discharged cases go back into active life, he said, and about 50 per cent of those discharged go back to their families. The others have no place to go, or their families do not want them, "and we have accepted those back into the hospital for the rest of their lives. . . . When we send these out, many of them are absolutely unable to take care of themselves. We cannot speak of them as cured. We have not restored any functions. We have simply discharged them as being no longer a menace to public health." —Science Service.

"Few would, I think, deny that what we call professional standards (professional ethics), the sense of esprit de corps, the realization that its members owe to the community something more than the qualities for which payment can be exacted, these things are born of the large degree of freedom to define their own life the professions enjoy."—Liberty in the Modern State, by Harold J. Laski.